VPDES PERMIT FACT SHEET

This document gives pertinent information concerning the reissuance of the VPDES permit listed below. This permit is being processed as a minor, municipal permit. The effluent limitations contained in this permit will maintain the Water Quality Standards of 9 VAC 25-260 et seq. The discharge results from the operation of a wastewater treatment facility that serves the Town of Callao. This permit action consists of updating the permit to reflect new limits and monitoring requirements and changes in Water Quality Standards, Guidance Memos, and the VPDES Permit Manual.

SIC Code: 4952 for sewage facilities

1. Facility Name and Address: Callao Wastewater Treatment Plant
P.O. Box 129
Heathsville, Virginia 22473

Facility location: 104 Harryhogan Road, Callao, VA

2. Permit No. VA0091421 Expiration Date: June 24, 2009

3. Owner Contact: Kenneth D. Eades, Northumberland Co. Administrator
Telephone No: (804) 580-7666

4. Application Complete Date:
Application Administratively Complete on:
Permit Drafted By: Denise Mosca Date: April 2, 2009
Reviewed By: Ray Jenkins Date: April 22, 2009
Reviewed By: Gina Kelly Date: May 5, 2005
Reviewed By: Curt Linderman Date: May 11, 2009
DEQ Regional Office: Piedmont Regional Office

5.

Receiving Stream Name:	UTRIB Lodge Creek
River Mile:	1AXCT000.20
Basin:	Potomac
Subbasin:	Potomac
Section:	1a
Class:	III
Special Standards:	none
7-Day, 10-Year Low Flow (7Q10):	0 MGD
7-Day, 10-Year High Flow (7Q10):	0 MGD
1-Day, 10-Year Low Flow (1Q10):	0 MGD
1-Day, 10-Year High Flow (1Q10):	0 MGD
30-Day, 10-Year Low Flow (30Q10):	0 MGD
30-Day, 5-Year Low Flow (30Q5):	0 MGD
Harmonic Mean Flow (HM):	0 MGD
Tidal?	NO
303(d) list?	NO

See **Attachment A** – Flow Frequency Determination Memorandum

6. Operator License Requirements: The recommended attendance hours by a licensed operator and the minimum daily hours that the treatment works should be manned by operating staff are

contained in the Sewage Collection and Treatment Regulations (SCATS) 9 VAC 25-790 et seq. A Class III licensed operator is required for this facility.

7. Reliability Class: Reliability is a measurement of the ability of a component or system to perform its designated function without failure or interruption of service. The reliability classification is based on the water quality and public health consequences of a component or system failure. The permittee is required to maintain Class I Reliability for this facility.

8. Permit Characterization:

(X) Reissuance
(X) Municipal
(X) POTW

(X) Existing Discharge
(X) Effluent Limited
(X) Water Quality Limited
(X) Compliance Schedule Required
SIC Code(s): 4952

9. Wastewater Flow and Treatment:

Outfall Number	Wastewater Source	Treatment	Design Flow (MGD)
001	Domestic wastewater generated by the Town of Callao.	Influent flow measurement, influent equalization basin/anoxic basin, screener, extended aeration, membrane bio-reactors, ultra-violet disinfection, re-aeration, effluent flow measurement.	0.060

See **Attachment B** – Wastewater Treatment Facility Schematic

10. Sewage Sludge Use or Disposal: Sewage sludge is pumped to an aerobic digester and followed by transportation by a sludge hauler to the Town of Reedville WWTP where it will be applied to sludge drying beds or the Reedville digester. Dewatered sludge will then be taken from Reedville to the Waste Management Facility landfill in Gloucester.

11. Discharge Location Description: See **Attachment C** – Location Maps (USGS Lottsburg).

12. Material Storage: No process or operation of the plant requires bulk storage of any material. Small volumes of solutions required for laboratory water sampling and surface cleaning/disinfection will be stored in appropriate, approved storage cabinets in a 16 by 24 ft. Control/Laboratory Building.

13. Ambient Water Quality Information: The facility discharges to a dry ditch, which drains to an intermittent tributary to Lodge Creek. Because the receiving stream is a dry ditch, it is appropriate to use Callao wastewater treatment plant effluent data rather than ambient stream data for calculating water quality standards. The receiving stream was not assessed during the 2008 305(b)/303(d) Water Quality Assessment cycle. See **Attachment D** for facility data.

14. Antidegradation Review & Comments:

Tier: 1 X 2_____ 3_____
The State Water Control Board's Water Quality Standards include an antidegradation policy (9 VAC 25-260-30). All state surface waters are provided one of three levels of

antidegradation protection. For Tier 1 or existing use protection, existing uses of the water body and the water quality to protect these uses must be maintained. Tier 2 water bodies have water quality that is better than the water quality standards. Significant lowering of the water quality of Tier 2 waters is not allowed without an evaluation of the economic and social impacts. Tier 3 water bodies are exceptional waters and are so designated by regulatory amendment. The antidegradation policy prohibits new or expanded discharges into exceptional waters. The limitations in this permit were developed in accordance with § 303(d)(4) of the Clean Water Act. Therefore, antidegradation restrictions do not apply.

The antidegradation review begins with a Tier determination. The unnamed tributary to Lodge Creek is considered a Tier 1 Water because it is an intermittent tributary where all designated uses cannot fully be attained.

15. Site Inspection: Date April 4, 2007 Performed by Michael Dare
See **Attachment F**.

16. Effluent Screening & Limitation Development:

PARAMETER	BASIS	DISCHARGE LIMITS				Monitoring Requirements	
		MO AVG	WK AVG	MIN	MAX	FREQ	SAMPLE TYPE
001 Flow	NA	NL	NA	NA	NL	Continuous	TIRE
002 pH	1,2	NA	NA	6.0 s.u.	9.0 s.u.	1/Day	Grab
003 5-Day Carbonaceous Biological Oxygen Demand ($CBOD_5$)	3	10 mg/l 2300 g/day	15 mg/l 3400 g/day	NA	NA	1/Week	4HC
004 Total Suspended Solids (TSS)	3	10 mg/l 2300 g/day	15 mg/l 3400 g/day	NA	NA	1/Month	4HC
007 Dissolved Oxygen (DO)	1,3	NA	NA	5.0 mg/l	NA	1/Day	Grab
120 *E. coli*	1	126 N/100 ml (geometric mean)	NA	NA	NL	1/Week	Grab (10am-4pm)
039 Ammonia - N	1	0.70 mg/l	1.02 mg/l	NA	NA	1/Week	4HC
068 Total Kjeldahl Nitrogen	3	3.0 mg/l 680 g/d	4.5 mg/l 1000 g/d	NA	NA	1/Week	4HC
196 Total Recoverable Zinc	1	82 ug/l	82 ug/l	NA	NA	1/Month	4HC
350 Tributyltin (TBT)	3	NL	NL	NA	NA	1/6 Months	4HC

1. Water Quality Based Effluent Limitations
2. Federal Effluent Limit Guidelines
3. Best Engineering Judgment

pH: A pH limitation of 6.0-9.0 Standard Units is assigned to all Class III waters in accordance with VA Water Quality Standards, 9VAC 25-260-50, and federal secondary treatment standard guidelines.

$CBOD_5$, TSS, TKN These limits were assigned in the 2004 Stream Sanitation Analysis Memorandum through best engineering judgment. Because the stream lacks the defined stream channel and other characteristics necessary to use agency modeling tools, judgment was used in accordance with A.J. Anthony's Swamp Limits memorandum of 1987. That memorandum recommends limits of 10 mg/l for $CBOD_5$ and TSS. A TKN limit of 3.0 mg/l is recommended.

DO: The DO minimum limitation of 5.0 mg/l is carried forward from the previous permit as proposed in the Stream Sanitation Analysis Memorandum (**See Attachment E**). This limitation is based on VA Water Quality Standards, 9VAC 25-260-50, daily average dissolved oxygen criterion for Class III waters.

E. coli: Water Quality Based Effluent Limitation. All sewage discharges must be disinfected to achieve applicable bacterial concentrations in accordance with VA Water Quality Standards, 9VAC 25-260-170. *E. coli* is the bacterial indicator for sewage effluents to freshwater and is currently added to all permits with ultra violet disinfection. In the previous permit cycle, fecal coliform was sampled because it used to be the appropriate bacterial indicator. In addition, the E. coli parameter is carried over from the previous permitting cycle. It was required under a schedule of compliance in Part I.B.2. of the 2004 permit because all of the required information from the bacteria demonstration study was not submitted by the deadline date.

For all other parameters, limitation evaluation begins with a wasteload allocation analysis using MSTRANTI draft k, version 1 (a DEQ excel spreadsheet). Acute, chronic, and human health waste load allocations are calculated from criteria for surface water given in the VA Water Quality Standards (9VAC 25-260-140). While the facility does not discharge to a public water supply zone (PWS), human health waste load allocations for PWS were also calculated for consideration in the evaluation (See **Attachment G** for further comments). Statistically derived permit limits are then obtained by inputting these acute and chronic waste load allocations along with effluent data and required quantification limits into the DEQ statistical program (STATS.exe). High flow conditions were not evaluated since tiered limitations are not required for this permit reissuance. See **Attachment G** for Facility Effluent Data Summary and Evaluation, and **Attachment H** for MSTRANTI Printout and MSTRANTI Data Source Report.

NH_3: New water quality limits of 0.70 mg/l monthly average and 1.02 mg/l weekly average were determined using MSTRANTI and STATS. The wasteload allocation analysis was conducted as described above with the exception that an ammonia default data value of 3.0 mg/l was used in place of effluent data as described in DEQ Guidance Memo No. 00-2011. Instead of the value of 9.0 mg/l listed in the guidance memo, because there is already a TKN limit in place of 3.0 mg/l, 3.0 mg/l is used as the default value in STATS. Though TKN is assumed to be 2/3 ammonia, the calculated ammonia limits are less than 2/3 of the TKN limit. Therefore, to be protective of water quality, ammonia limits were imposed in accordance with a 4-year schedule of compliance. See **Attachment G** for STATS.exe output.

TRC (005): TRC monthly average and weekly average limitations are lowered from the 2004 permit limit of 11 ug/l to 7.4 ug/l monthly average and 8.4 ug/l weekly average. For the 2004 permit, the TRC chronic wasteload allocation of 11 ug/l was used as the limit because the plant had not been constructed and there were no data to use in an evaluation with MSTRANTI and STATS. For the 2009 permit action, the wasteload allocation analysis was conducted as

described above with the exception that a TRC default data value of 20000 ug/L is used to force the calculation of a limit where chlorination is the means of disinfection in accordance with Guidance Memo 00-2011. Since chlorine is a known toxicant and purposefully introduced into the effluent, a chlorine limit is required if chlorine is used at the site. See **Attachment G** for STATS.exe output.

TRC (157 and 213): Limits are carried forward from the previous permit (in current permit reissuance special condition Part I.B.). See Item #20.B. for special condition rationale.

Radionuclides: In the application, data is reported for Beta Particle and Photon Activity in units of concentration (pCi/L) whereas the applicable water quality standard is an exposure in terms of mrem/yr. The EPA has established this same standard for community potable water systems. Federal regulation (National Primary Drinking Water Regulations – Code of Federal Regulations 40 CFR Part 141) states that compliance with the potable water standard may be assumed if the average annual concentration of Beta Particle and Photon Activity is less than 50 pCi/L and the average annual concentrations of Tritium and Strontium-90 are less than 20,000 pCi/L and 8 pCi/L, respectively. Tritium and Strontium-90 had reported values of 55.7 and 1.4 pCi/L, respectively, and Gross Beta Particle and Photon Activity was reported to be 33 pCi/L. These results are in compliance with the EPA community potable water systems standard stated above, so for the purposes of this evaluation, these radionuclides are believed not present at problem concentrations.

Other Parameters: The facility reported detectable data for Dissolved Zinc, Chloride, and Tributyltin (TBT). After evaluation with MSTRANTI and STATS, limits of 82 ug/l monthly and weekly average were determined for zinc, and in accordance with DEQ Guidance Memo No. 00-2011, the limit is applied as Total Recoverable Zinc. No limit is necessary for chloride after evaluation with MSTRANTI and STATS. One value for TBT of 0.038 ug/l was submitted and it exceeded the quantification level of 0.030 ug/l. On March 30, 2009, Northumberland sent a letter (see **Attachment D**) stating that there was no source for TBT, a biocide most commonly associated with anti-foulant paint, in Callao. The laboratory was asked to check its quality control. A limit will not be assigned at this time; however, the permittee will be asked to monitor for TBT every 6 months for the life of the permit to generate a large enough dataset for evaluation at the next permit reissuance See **Attachment G** for data summary and evaluation. All other parameters were reported below DEQ required quantification levels and thus considered absent for the purposes of this evaluation.

Human Health Evaluation: The Zinc effluent data value was also evaluated in relation to Human Health Standards. No limitations are required based on this evaluation. (See **Attachment G**).

17. Basis for Sludge Use & Disposal Requirements: This facility generates 2.3 dry metric tons of sludge annually. The Reedville WWTP, permitted under VA0060712, processes this sludge together with its own sludge. Lime is added as needed. The facility has an up-to-date sludge management plan. Sludge quality, including pollutant concentration limitations, pathogen reduction requirements, and vector control, applies to the Reedville WWTP and is regulated in 9 VAC25-31-540, 9 VAC 25-31-710, and 9 VAC 5-31-720, respectively.

18. Antibacksliding Statement: All limits are at least as stringent as in the previous permit. Changing the $CBOD_5$ and TSS loading limits is not backsliding but only changing the expression of those limits. A fecal coliform limit was removed; the presence of the E. coli limit is presumed to be equally protective because of the bacteria testing performed under the 2004 permit. See Section 24.e. for a discussion of dissolved oxygen limits at this site.

19. Compliance Schedules: Four-year schedules of compliance have been instituted for new water quality limits for total recoverable zinc and ammonia-N.

20. Special Conditions:

B. **Total Residual Chlorine (TRC) Effluent Limitations and Monitoring Requirements**
Rationale: Required by VA Water Quality Standards, 9 VAC 25-260-170 Bacteria: other waters. Also, 40 CFR 122.41(e) requires the permittee, at all times, to properly operate and maintain all facilities and systems of treatment in order to comply with the permit. This ensures proper operation of chlorination equipment to maintain adequate disinfection.

C. **Compliance Schedule**
Rationale: 9 VAC 25-31-250 allows for schedules of compliance, when appropriate, which will lead to compliance with the Clean Water Act, the State Water Control Law and regulations promulgated under them.

D.1. **95% Capacity Reopener**
Rationale: Required by VPDES Permit Regulation, 9 VAC 25-31-200 B 4 for all POTW and PVOTW permits.

D.2. **Indirect Dischargers**
Rationale Required by VPDES Permit Regulation, 9 VAC 25-31-200 B 1 and B.2. for POTWs and PVOTWs that receive waste from someone other than the owner of the treatment works.

D.3. **CTC & CTO Requirement**
Rationale:
Required by Code of Virginia § 62.1-44.19; Sewage Collection and Treatment Regulation, 9 VAC 25-790-50.

D.4. **O&M Manual Requirement**
Rationale: Required by Code of Virginia § 62.1-44.19; Sewage Collection and Treatment Regulation, 9 VAC 25-790; VPDES Permit Regulation, 9 VAC 25-31-190 E.

D.5. **Licensed Operator Requirement**
Rationale: The VPDES Permit Regulation, 9 VAC 25-31-200 C and the Code of Virginia 54.1-2300 et seq, Rules and Regulations for Waterworks and Wastewater Works Operators (18 VAC 160-20-10 et seq.), require licensure of operators.

D.6. **Reliability Class**
Rationale: Required by Sewage Collection and Treatment Regulations, 9 VAC 25-790 for all municipal facilities.

D.7. **Materials Handling/Storage**
Rationale: 9 VAC 25-31-50 A prohibits the discharge of any wastes into State waters unless authorized by permit. Code of Virginia § 62.1-44.16 and 62.1-44.17 authorizes the Board to regulate the discharge of industrial waste or other waste.

D.8. **Sludge Reopener**
Rationale: Required by VPDES Permit Regulation, 9 VAC 25-31-220 C for all permits issued to treatment works treating domestic sewage.

D.9. **Sludge Use and Disposal**
Rationale: VPDES Permit Regulation, 9 VAC 25-31-100 P; 220 B 2; and 420 through 720, and 40 CFR Part 503 require all treatment works treating domestic sewage to submit information on sludge use and disposal practices and to meet specified standards for sludge use and disposal.

D.10. **Compliance Reporting**
Rationale: Authorized by VPDES Permit Regulation, 9 VAC 25-31-190 J 4 and 220 I. This condition is necessary when pollutants are monitored by the permittee and a maximum level of quantification and/or a specific analytical method is required in order to assess compliance with a permit limit or to compare effluent quality with a numeric criterion. The condition also establishes protocols for calculation of reported values.

D.11. **Water Quality Criteria Reopener**
Rationale: Required by VPDES Permit Regulation, 9 VAC 25-31-220 D (requires effluent limitations to be established which will contribute to the attainment or maintenance of water quality criteria).

D.12. **Total Maximum Daily Load (TMDL) Reopener**
Rationale: Section 303(d) of the Clean Water Act requires that TMDLs be developed for waters listed as impaired. This special condition is to allow the permit to be reopened if necessary to bring it into compliance with any applicable TMDL approved for the receiving waters. This reopener is being put into all permits even if the discharge is not to a listed segment. The re-opener recognizes that, according to section 402(o)(1) of the Clean Water Act, limits and/or conditions may be either more or less stringent than those contained in this permit. Specifically, they can be relaxed if they are the result of a TMDL, basin plan, or other wasteload allocation prepared under section 303 of the Act.

D.13. **Industrial Pretreatment Program**
Rationale: VPDES Permit Regulation, 9 VAC 25-31-730 through 900, and 40 CFR part 403 require certain existing and new sources of pollution to meet specified regulations.

D.14. **Closure Plan**
Rationale: The requirement for this condition is the Code of Virginia § 62.1-44.19 of the State Water Control Law. This condition establishes the requirement to submit a closure plan for the wastewater treatment facility if the treatment facility is being replaced or is expected to close.

Part II **Conditions Applicable to All Permits**
Rationale: VPDES Permit Regulation, 9 VAC 25-31-190 requires all VPDES permits to contain or specifically cite the conditions listed.

21. Changes to Permit

Changes to Cover Page	
Changes	Reason
Format	Wording updated to reflect VPDES 2007 Permit Manual boilerplate.
Facility Name	Changed to reflect Facility Name in CEDS database
Facility Location	Updated to reflect street address.
River Subbasin	Changed from "NA" to correctly reflect "Potomac"

Changes to Part I.A.1 Outfall 001					
Parameter	Effluent Limits		Monitoring Requirements		Reason
	From	To	From	To	
$cBOD_5$ MO AVG	2.3 kg/day	2300 g/d	1/Wk	NC	Loading units changed to report whole numbers and limits rewritten to reflect two significant figures in accordance with DEQ Guidance Memo 06-2016.
$cBOD_5$ WK AVG	3.4 kg/day	3400 g/d			
TSS MO AVG	2.3 kg/day	2300 g/d	1/Mo.	NC	Same as above. Monitoring frequency reflects June 2003 WPM meeting minutes.
TSS WK AVG	3.4 kg/day	3400 g/d	1/Mo.	NC	Same as above. Monitoring frequency reflects June 2003 WPM meeting minutes.
E. coli MO AVG	NR	126 N/100 mL geometric mean	NR	1/Wk	Added in accordance with the current 2007 permit manual for UV plants. The fecal limit (in Part I.B.1.d.) from the 2004 permit was not included in the 2009 permit as fecal is no longer the appropriate bacterial indicator to show compliance with the bacterial standard.
Ammonia-N	NR	0.70 mg/l monthly avg And 1.02 mg/l wkly avg	NR	1/Week	Added in accordance with current 2007 permit manual. The significant digits are specified in accordance with May 5, 2009 staff meeting decisions
TKN	3.0 mg/l 0.68 kg/d monthly avg And 4.5 mg/l 1 kg/d wkly avg	3.0 mg/l 680 g/d monthly avg And 4.5 mg/l 1000 g/d wkly avg	NC	NC	Loading units changed to report whole numbers and limits rewritten to reflect two significant figures in accordance with DEQ Guidance Memo 06-2016.
Total Recover-able Zinc	NR	82 ug/l monthly avg And wkly avg	NR	1/Mo	Water Quality Limit added in accordance with DEQ Guidance Memo No. 00-2011.

Changes to Part I.A.1 Outfall 001					
Parameter	Effluent Limits		Monitoring Requirements		Reason
	From	To	From	To	
TBT	NR	NL	NR	1/6Mo	See Item # 16 above.
TRC	11 ug/l monthly avg And 11 ug/l wkly avg	7.4 ug/l monthly avg And 8.4 ug/l wkly avg	1/ Day grab	3/Day at 4-hr inter-vals	If the facility were to add chlorination, these limits would take effect. In accordance with WPM meeting minutes for 11/19/08, the outfall sampling frequency was adjusted to match the contact tank sampling frequency.
NC = No Change NL = Monitor Only NR = Not required					

Other Changes to Part I.A.1 Outfall 001
Footnotes for Part I.A.1. (Outfall 001) of the 2009 permit were inserted to reflect new format and revisions as indicated below: Footnote (a) of the 2009 permit references Part I.D.1 for the 95% flow condition. In Part I.A.1.a. the 2004 permit cited Part I.C. Part I.A.1.b. of the 2004 permit was moved to the Part I.A.1. table legend in the 2009 permit. 4 HC was also added to the table legend for clarification. Part I.A.1.c. of the 2004 permit references additional TRC limitations that may be found in Note 5 in the 2009 permit. Part I.A.1.d. of the 2004 permit references the compliance reporting condition is referenced in footnote (b) in the 2009 permit. Footnote (e) in the 2009 permit adds language denoting the schedule of compliance. No change to Part I.A.2. from the 2004 permit to the 2009 permit. Part I.A.3. in the 2004 permit was changed to Part I.A.4. in the 2009 permit. BOD was corrected to cBOD. Footnote (c) was added to the 2009 permit in accordance with current agency guidance and addresses significant figures in accordance with DEQ Guidance Memo 06-2016. Flow was expressed as 0.060 MGD. Part I.A.3. in the 2009 permit was added to specify where samples should be taken.

Special Condition Changes		
From	To	Rationale
B.1.	B	Total Residual Chlorine (TRC) Effluent Limitations and Monitoring Requirements – this section was added to provide TRC limitations in case the facility changes to chlorination at a later time so a permit modification does not need to be done. TRC (DMR parameter 213) was changed from 0.6 to 0.60 mg/l to reflect increase to two significant figures
B.2.		Bacteria Study – The permittee submitted partial information to respond to this condition. Because this condition is not required in the current 2007 permit manual, the language was removed from the draft permit.
	C.	Schedule of compliance. Added for new water quality limits in accordance with the current 2007 permit manual.

Special Condition Changes		
From	To	Rationale
C.1.	D.1.	95% Capacity Reopener – Current 2007 permit manual customized to remove PRO address in case of future office relocation.
C.2.	D.2.	Notification condition. No change to language.
	D.3.	CTC, CTO Requirement – Added in conformance with the current 2007 VPDES Permit Manual.
C.3.	D.4.	O&M Manual—Reflects changes in the current 2007 VPDES Permit Manual.
C.4.	D.5.	Licensed operator requirement—No change.
C.5.	D.6.	Reliability class—No change.
C.6.	D.8.	Sludge Reopener— No change.
C.7.	D.7.	Materials Handling Condition – No change to language.
C.8.	D.14.	Facility Closure Plan – draft permit language updated in accordance with WPM meeting minutes of 3-18-09.
C.9.	D.10.	Compliance Reporting—Revised in accordance with the current 2007 VPDES Permit Manual. Language revised to improve clarity in accordance with PRO Staff decision on May 6, 2008.
C.10.	D.9.	Sludge Use and Disposal—Reflects changes in the current 2007 VPDES Permit Manual and transfer of program from VDH to DEQ.
C.11.	D. 13.	Industrial Pretreatment Program – no change to language.
--	D.11.	Water Quality Criteria Reopener—Added in accordance with the current 2007 VPDES Permit Manual.
--	D.12.	Total Maximum Dialy Load (TMDL) Reopener—Added in accordance with the current 2007 VPDES Permit Manual.

22. Variances/Alternate Limits or Conditions: None.

23. Public Notice Information required by 9 VAC 25-31-280 B:
Publication Dates: May 20 and May 27, 2009
Comment period Start Date: May 20, 2009 End Date: June 22, 2009
Publication in: The Northumberland Echo
All pertinent information is on file and may be inspected, and copied by contacting Denise Mosca at:

VDEQ - Piedmont Regional Office
4949-A Cox Road
Glen Allen, VA 23060
Telephone No. (804) 527-5027
E-mail address:Denise.Mosca@deq.virginia.gov

DEQ accepts comments and requests for public hearing by e-mail, fax or postal mail. All comments and requests must be in writing and be received by DEQ during the comment period. Submittals must include the names, mailing addresses and telephone numbers of the commenter/requester and of all persons represented by the commenter/requester. A request for public hearing must also include: 1) The reason why a public hearing is requested. 2) A brief, informal statement regarding the nature and extent of the interest of the requester or of those represented by the requester, including how and to what extent such interest would be directly and adversely affected by the permit. 3) Specific references, where possible, to terms and conditions of the permit with suggested revisions. DEQ may hold a public hearing, including another comment period, if public response is significant and there are substantial, disputed issues relevant to the permit.

The public may review the draft permit and application at the DEQ Piedmont Regional Office by appointment.

Public Comment: No comments were received.

24. Additional Comments:
Previous Board Action: None.

Staff Comments:

a. Reduced Monitoring was not considered for this facility as warning letter W2008-12-P-1009 was sent on December 30, 2008 for non-submittal of the industrial user survey.

b. All sludge testing and reporting requirements are being met by the sludge handling facility (Reedville Sanitary District, Permit No. VA0060569) which receives all the generated sludge from this facility.

c. The facility is not subject to the requirements of the Chesapeake Bay Nutrient General Permit as the facility's design flow is less than 100,000 gpd, and the discharge is downstream of the fall line. No expansion is planned at this time. DEQ – Office of Wastewater Engineering actions qualify the facility as a having a permitted design capacity due to a CTC (for the 0.060 MGD design flow) being issued prior to 7/1/05. The CTC for the 0.060 MGD plant was conditionally approved 1/10/05 (PTLog #18873) subject to O&M Manual approval prior to issuance of a CTO. Interestingly, the OWE files indicate the O&M Manual was not approved prior to the CTO. Rather, a CTO was conditionally approved on 12/29/06, subject to (repetitively) O&M Manual approval (PTLog #22384). The O&M Manual was ultimately approved 6/18/07 (PTLog #22708).

d. The Virginia Department of Health's Office of Drinking Water reviewed the reissuance application and responded with no comments on January 12, 2009. The facility has a Reliability Class I designation which is a continued requirement for this permit reissuance.

e. This permit was issued in 2004 with a dissolved oxygen (D.O.) limit of 5.0 mg/l and a $cBOD_5$ limit of 10 mg/l. A previous smaller facility which discharged at this site served Callao Elementary School VA0020885 (which later was sold to a private owner and became Callao Shops and Apartments VA0020885). It was taken off-line when the Callao municipal wastewater system came on-line

25. 303(d) Listed Segments (TMDL)
The receiving stream was not assessed in the 2008 305(b)/303(d) Integrated Report, therefore the waters are considered to be Category 3A. The discharge is not addressed in any TMDL, including the Yeocomico River Shellfish TMDL. This segment was not assessed for its other designated uses.

26. Attachments:

A: Flow Frequency Determination Memorandum
B: Wastewater Treatment Facility Schematic
C: Location Map
D: Callao WWTP Application Data
E: Stream Sanitation Analysis
F: Site Visit and Inspection Report
G: Facility Effluent Data Evaluation
H: MSTRANTI Printout and MSTRANTI Data Source Report

Attachment A

Flow Frequency Determination Memorandum

MEMORANDUM

DEPARTMENT OF ENVIRONMENTAL QUALITY
Piedmont Regional Office
4949-A Cox Road Glen Allen, Virginia 23060

SUBJECT: Flow Frequency Determination / 303(d) Status
Callao WWTP – VA0091421

TO: Denise M. Mosca

FROM: Jennifer V. Palmore, P.G.

DATE: November 19, 2008

COPIES: File

The Callao Wastewater Treatment Plant discharges to an unnamed tributary of Lodge Creek in Northumberland County, VA. The discharge is located at river mile 1AXCT000.20. Stream flow frequencies are required at this site for use by the permit writer in developing effluent limitations for the VPDES permit.

At the discharge point, the receiving stream is shown to be a dry ditch which drains to an intermittent stream, as shown on the USGS Lottsburg Quadrangle topographic map. The flow frequencies for intermittent streams are shown below.

Unnamed tributary at discharge point:

1Q30 = 0.0 cfs	High Flow 1Q10 = 0.0 cfs
1Q10 = 0.0 cfs	High Flow 7Q10 = 0.0 cfs
7Q10 = 0.0 cfs	High Flow 30Q10 = 0.0 cfs
30Q10 = 0.0 cfs	HM = 0.0 cfs
30Q5 = 0.0 cfs	

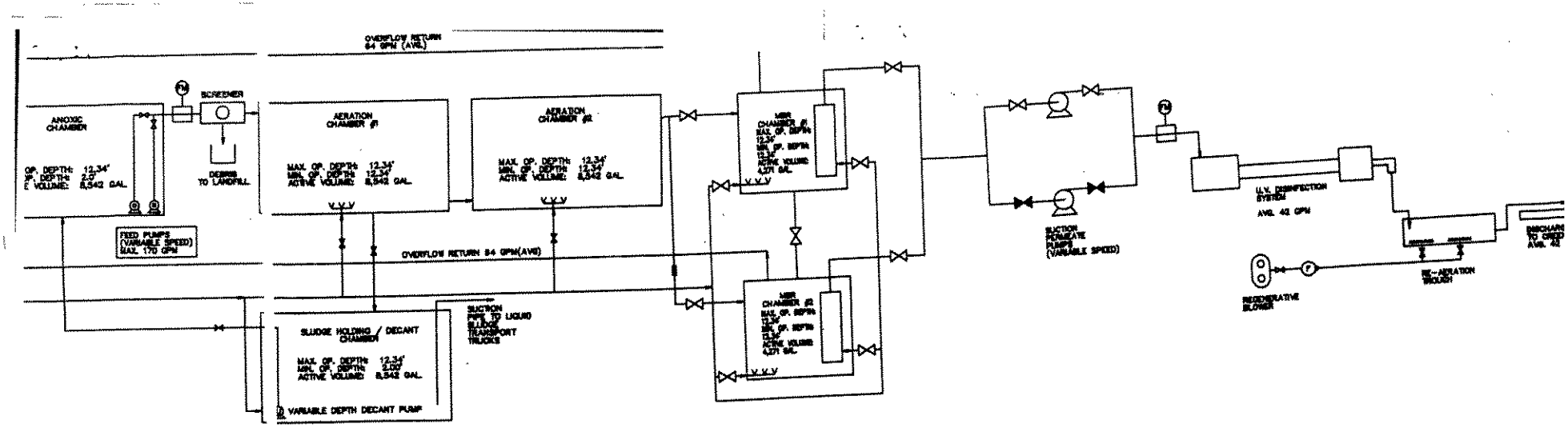
The receiving stream was not assessed during the 2006 or draft 2008 305(b)/303(d) Water Quality Assessment cycles, therefore the waters are considered Category 3A. The discharge is not addressed in any TMDL, including the Yeocomico River Shellfish TMDL.

Due to the intermittent nature of the tributary, the stream should be considered a Tier 1 water and it is appropriate to use effluent data, rather than ambient stream data, when calculating permit limits.

If you have any questions concerning this analysis, please let me know.

Attachment B

Wastewater Treatment Facility Schematic



Callao WWTP VA0091421

Attachment C

Location Map

U.S.G.S. 7.5 MINUTE SERIES QUADRANGLES
CALLAO, VA
SCALE: 1" - 1,000'

FIGURE 2
VICINITY MAP
CALLAO WWTP
NORTHUMBERLAND COUNTY
AUGUST 2003

RESOURCE INTERNATIONAL, LTD.
ENGINEERS • SCIENTISTS • SURVEYORS • PLANNERS
P.O. BOX 8160 • 9560 KINGS CHARTER DRIVE • ASHLAND, VA 23005
(804) 550-9200 • FAX (804) 550-9259

Attachment D

Callao WWTP Application Data

Callao WWTP VA0091421
Effluent Max pH 10/10/06-11/10/08

8.4
8.4
8.4
8.4
8.3
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7.4
7.4
7.4
7.4

8.4
90th %ile

7.4
10th %ile

FACILITY NAME AND PERMIT NUMBER:
Callao WD VA 0091421

Form Approved 1/14/99
OMB Number 2040-0086

A.11. Description of Treatment.

a. What levels of treatment are provided? Check all that apply.

✔ Primary ✔ Secondary

____ Advanced ✔ Other. Describe: Disinfection

b. Indicate the following removal rates (as applicable):

Design BOD_5 removal or Design $CBOD_5$ removal	95	%
Design SS removal	95	%
Design P removal	N/A	%
Design N removal	90	%
Other _____	_____	%

c. What type of disinfection is used for the effluent from this outfall? If disinfection varies by season, please describe.

UV lights

If disinfection is by chlorination, is dechlorination used for this outfall? ____ Yes ✔ No

d. Does the treatment plant have post aeration? ✔ Yes ____ No

A.12. Effluent Testing Information. All Applicants that discharge to waters of the US must provide effluent testing data for the following parameters. Provide the indicated effluent testing required by the permitting authority for each outfall through which effluent is discharged. Do not include information on combined sewer overflows in this section. All information reported must be based on data collected through analysis conducted using 40 CFR Part 136 methods. In addition, this data must comply with QA/QC requirements of 40 CFR Part 136 and other appropriate QA/QC requirements for standard methods for analytes not addressed by 40 CFR Part 136. At a minimum, effluent testing data must be based on at least three samples and must be no more than four and one-half years apart.

Outfall number: VA 0091421

PARAMETER	MAXIMUM DAILY VALUE		AVERAGE DAILY VALUE		
	Value	Units	Value	Units	Number of Samples
pH (Minimum)	6.8	s.u.			3
pH (Maximum)	7.7	s.u.			3
Flow Rate	.0200	mgd			
Temperature (Winter)	14	c			
Temperature (Summer)	24	c			

* For pH please report a minimum and a maximum daily value

POLLUTANT		MAXIMUM DAILY DISCHARGE		AVERAGE DAILY DISCHARGE			ANALYTICAL METHOD	ML / MDL
		Conc.	Units	Conc.	Units	Number of Samples		
CONVENTIONAL AND NONCONVENTIONAL COMPOUNDS.								
BIOCHEMICAL OXYGEN DEMAND (Report one)	BOD-5		mg/l		mg/l			
	CBOD-5	<3	mg/l	<3	mg/l	6	5210B	AS
FECAL COLIFORM		<2	mg/l	<2	mg/l	6	9221E	AS
TOTAL SUSPENDED SOLIDS (TSS)		<1.6	mg/l	<1.6	mg/l	6	2540D	AS

END OF PART A.
REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM 2A YOU MUST COMPLETE

527-5106

Northumberland County, Virginia

Board of Supervisors

P.O. Box 129 • 72 Monument Place
Heathsville, Virginia 22473

March 30, 2009

Ms. Denise M. Mosca
Environmental Engineer Sr.
Department of Environmental Quality
P. O. Box 669
Kilmarnock, Virginia 22482

Dear Ms. Mosca:

This is in response to our conversation today concerning the findings of Tributyltin (TBT) in the discharge sample at the Callao Wastewater Treatment Plant. There are no industries within the sewer district that use any anti-fouling paints and unless this was a lab mistake, the fact that the chemical was found is quite confusing.

We will check with the lab to see if any errors may have been made and see if there would be any reason for this testing result.

As always it is a pleasure working with you and if you need any further information or have any questions, feel free to contact me.

Sincerely,

Kenneth D. Eades
County Administrator

* Contacted our Lab. They will be reviewing this finding also. If they find anything else we will contact you.

Mosca,Denise

From: David Stoneman [primarylabs@erols.com]
Sent: Tuesday, March 24, 2009 12:42 PM
To: Mosca,Denise
Subject: Callao-Hardness

Attachments: 03-24-2009 12;40;33PM.pdf

03-24-2009
2;40;33PM.pdf (1 M.

Please find the result for Hardness. David.

Primary Laboratories, Inc.
Results

24-Mar-09

Date Sampled: 15-Jan-09
Work Order No: 0901117-01
Client ID: **Final Effluent Grab**

Test Description	Final Result	Reporting Limit	Units of Measure	Method Numbers*	Date Analyzed	Tech. Initials
Chlorides	41.50	0.01	mg/L	4500CL B	21-Jan-09	NA
Cyanide	<0.01	0.01	mg/L	4500CN E	16-Jan-09	AS
Hydrogen Sulfide	<0.05	0.05	mg/L	376.1	23-Jan-09	HV
Hardness	65.6	0.1	mg/L @ $CaCO_3$	2340 C	24-Mar-09 at 9:30	NA

Method Numbers*: EPA 625
Date Analyzed: 22-Jan-09
Technician: HV
Units of Measure: ug/L
Date Sampled: 15-Jan-09
Work Order No: 0901117-01
Client ID: **Final Effluent Grab**

Test Description	Final Result	Detection Limit
Acid Extractables		
2-Chlorophenol	<5	5
2,4-Dichlorophenol	<5	5
2,4-Dimethylphenol	<5	5
2,4-Dinitrophenol	<5	5
2-Methyl-4,6-Dinitrophenol	<5	5
Pentachlorophenol	<5	5
Phenol	<5	5
2,4,6-Trichlorophenol	<5	5

Primary Laboratories, Inc.

7423 Lee Davis Road, Mechanicsville, VA 23111 . Telephone (804) 559-9004 . Fax (804) 559-9306

ANALYTICAL LABORATORY REPORT

20-Mar-09

Callao Treatment Plant
Attn: Lee Bowles
104 Harryhogan Road
Callao, VA 22435

Date Received: 15-Jan-09
Date Sampled: 15-Jan-09
Work Order No: 0901117-01
Client ID: **Final Effluent Grab**

Test Description	Final Result	Reporting Limit	Units of Measure	Method Numbers*	Date Analyzed	Tech. Initials
Dissolved Metals						
Antimony	<0.2	0.2	ug/L	EPA 200.2/3120B	26-Feb-09	HV
Arsenic	<50.0	50.0	ug/L	EPA 200.2/3120B	16-Jan-09	HV
Cadmium	<0.3	0.3	ug/L	EPA 200.2/3120B	27-Feb-09	HV
Chromium	<0.5	0.5	ug/L	EPA 200.2/3120B	27-Feb-09	HV
Copper	<0.5	0.5	ug/L	EPA 200.2/3120B	27-Feb-09	HV
Lead	<0.5	0.5	ug/L	EPA 200.2/3120B	3-Mar-09	HV
Mercury	<0.2	0.2	ug/L	3112B	22-Jan-09	HV
Nickel	<0.5	0.5	ug/L	EPA 200.2/3120B	26-Feb-09	HV
Selenium	<2.0	2.0	ug/L	EPA 200.2/3120B	26-Feb-09	HV
Silver	<0.2	0.2	ug/L	EPA 200.2/3120B	27-Feb-09	HV
Thallium	<2.0	2.0	ug/L	EPA 200.2/3113B	21-Jan-09	HV
Zinc	42.0	10.0	ug/L	EPA 200.2/3120B	16-Jan-09	HV
Chromium VI	<0.5	0.5	ug/L	3500	15-Jan-09	NA

RE Callao Permit Results

From: David Stoneman [primarylabs@erols.com]
Sent: Monday, March 23, 2009 10:07 AM
To: Mosca,Denise
Subject: RE: Callao Permit Results

Attachments: 0901117-COA.pdf

Pleasae find Cert of Analysis attached. David.

-----Original Message-----
From: Mosca,Denise [mailto:dmmosca@deq.virginia.gov]
Sent: Monday, March 23, 2009 9:49 AM
To: David Stoneman
Subject: RE: Callao Permit Results

Thanks for sending the Water Quality results form, could you also send the lab certification showing these results?
Denise

Denise Mosca
Environmental Specialist II
DEQ-Piedmont Regional Office
4949-A Cox Road,
Glen Allen, Va. 23060
(804) 527-5027
fax (804) 527-5106

-----Original Message-----
From: David Stoneman [mailto:primarylabs@erols.com]
Sent: Monday, March 23, 2009 9:11 AM
To: Mosca,Denise
Subject: Callao Permit Results

Please find attached. 5 pages.

Primary Laboratories, Inc.
Results

20-Mar-09

Date Sampled: 15-Jan-09
Work Order No: 0901117-01
Client ID: **Final Effluent Grab**

Test Description	Final Result	Reporting Limit	Units of Measure	Method Numbers*	Date Analyzed	Tech. Initials
Pesticides						
Aldrin	<0.05	0.05	ug/L	EPA 608	22-Jan-09	HV
Chlordane	<0.10	0.10	ug/L	EPA 608	22-Jan-09	HV
4,4-DDD	<0.10	0.10	ug/L	EPA 608	22-Jan-09	HV
4,4-DDE	<0.10	0.10	ug/L	EPA 608	22-Jan-09	HV
4,4-DDT	<0.10	0.10	ug/L	EPA 608	22-Jan-09	HV
Dieldrin	<0.10	0.10	ug/L	EPA 608	22-Jan-09	HV
Endosulfan (alpha)	<0.10	0.10	ug/L	EPA 608	22-Jan-09	HV
Endosulfan (beta)	<0.10	0.10	ug/L	EPA 608	22-Jan-09	HV
Endosulfan sulfate	<0.10	0.10	ug/L	EPA 608	22-Jan-09	HV
Endrin	<0.10	0.10	ug/L	EPA 608	22-Jan-09	HV
Endrin Aldehyde	<0.50	0.50	ug/L	EPA 608	22-Jan-09	HV
Heptachlor	<0.10	0.10	ug/L	EPA 608	22-Jan-09	HV
Heptachlor Epoxide	<0.10	0.10	ug/L	EPA 608	22-Jan-09	HV
Alpha-BHC	<0.10	0.10	ug/L	EPA 608	22-Jan-09	HV
Beta-BHC	<0.10	0.10	ug/L	EPA 608	22-Jan-09	HV
Gamma-BHC (Lindane)	<0.05	0.05	ug/L	EPA 608	22-Jan-09	HV
Kepone	<0.10	0.10	ug/L	EPA 608	22-Jan-09	HV
Methoxychlor	<0.10	0.10	ug/L	EPA 608	22-Jan-09	HV
Mirex	<0.10	0.10	ug/L	EPA 608	22-Jan-09	HV
PCB-1260	<0.20	0.20	ug/L	EPA 608	22-Jan-09	HV
PCB-1254	<0.20	0.20	ug/L	EPA 608	22-Jan-09	HV
PCB-1248	<0.20	0.20	ug/L	EPA 608	22-Jan-09	HV
PCB-1242	<0.20	0.20	ug/L	EPA 608	22-Jan-09	HV
PCB-1232	<0.20	0.20	ug/L	EPA 608	22-Jan-09	HV
PCB-1221	<0.20	0.20	ug/L	EPA 608	22-Jan-09	HV
PCB-1016	<0.20	0.20	ug/L	EPA 608	22-Jan-09	HV
PCB Total	<0.20	0.20	ug/L	EPA 608	22-Jan-09	HV
Toxaphene	<0.10	0.10	ug/L	EPA 608	22-Jan-09	HV

Primary Laboratories, Inc.
Results

20-Mar-09

Method Numbers*:	EPA 625
Date Analyzed:	22-Jan-09
Technician:	HV
Units of Measure:	ug/L
Date Sampled:	15-Jan-09
Work Order No:	0901117-01
Client ID:	**Final Effluent Grab**

Test Description	Final Result	Detection Limit
Semi-Volatiles		
Acenaphthene	<5	5
Anthracene	<5	5
Benzidine	<5	5
Benzo(a) anthracene	<5	5
Benzo(b) fluoranthene	<5	5
Benzo(k) fluoranthene	<5	5
Benzo(a)pyrene	<5	5
bis-(2-Chloroethyl)ether	<5	5
bis-(2-Chloroisopropyl)ether	<5	5
Butyl benzyl phthalate	<5	5
2-Chloronaphthalene	<5	5
Chrysene	<5	5
Dibenzo(a,h)anthracene	<5	5
Dibutyl phthalate	<5	5
3,3-Dichlorobenzidine	<5	5
Diethyl phthalate	<5	5
Di-2-ethylhexyl Phthalate	<5	5
Dimethyl phthalate	<5	5
2,4-Dinitrotoluene	<5	5
1,2-Diphenylhydrazine	<5	5
Fluoranthene	<5	5
Fluorene	<5	5
Hexachlorobenzene	<5	5
Hexachlorobutadiene	<5	5
Hexachlorocyclopentadiene	<5	5
Hexachloroethane	<5	5
Indeno(1,2,3-cd) pyrene	<5	5
Isophorone	<5	5
Nitrobenzene	<5	5
N-Nitrosodimethylamine	<5	5
N-Nitrosodiphenylamine	<5	5
N-Nitrosodi-n-propylamine	<5	5
Pyrene	<5	5
1,2,4-Trichlorobenzene	<5	5

Primary Laboratories, Inc.
Results

20-Mar-09

Method Numbers*:	EPA 624
Date Analyzed:	21-Jan-09
Technician:	PB
Units of Measure:	ug/L
Date Sampled:	15-Jan-09
Work Order No:	0901117-01
Client ID:	**Final Effluent Grab**

Test Description	Final Result	Detection Limit
Acrolein	<5	5
Acrylonitrile	<5	5
Benzene	<5	5
Bromoform	<5	5
Carbon tetrachloride	<5	5
Chlorobenzene	<5	5
Chlorodibromomethane	<5	5
Chloroform	<5	5
1,2-Dichlorobenzene	<5	5
1,3-Dichlorobenzene	<5	5
1,4-Dichlorobenzene	<5	5
Dichlorobromomethane	<5	5
1,2-Dichloroethane	<5	5
1,1-Dichloroethylene	<5	5
trans-1,2-Dichloro-ethylene	<5	5
1,2-Dichloropropane	<5	5
1,3-Dichloropropene	<5	5
Ethylbenzene	<5	5
Methyl Bromide	<5	5
Methylene Chloride	<5	5
1,1,2,2-Tetrachloro-ehtane	<5	5
Tetrachloroethylene	<5	5
Toluene	<5	5
1,1,2-Trichloroethane	<5	5
Trichloroethylene	<5	5
Vinyl Chloride	<5	5

Primary Laboratories, Inc.
Results

20-Mar-09

Date Sampled: 15-Jan-09
Work Order No: 0901117-01
Client ID: **Final Effluent Grab**

Test Description	Final Result	Reporting Limit	Units of Measure	Method Numbers*	Date Analyzed	Tech. Initials
Chlorides	41.50	0.01	mg/L	4500CL B	21-Jan-09	NA
Cyanide	<0.01	0.01	mg/L	4500CN E	16-Jan-09	AS
Hydrogen Sulfide	<0.05	0.05	mg/L	376.1	23-Jan-09	HV

Method Numbers*: EPA 625
Date Analyzed: 22-Jan-09
Technician: HV
Units of Measure: ug/L
Date Sampled: 15-Jan-09
Work Order No: 0901117-01
Client ID: **Final Effluent Grab**

Test Description	Final Result	Detection Limit
Acid Extractables		
2-Chlorophenol	<5	5
2,4-Dichlorophenol	<5	5
2,4-Dimethylphenol	<5	5
2,4-Dinitrophenol	<5	5
2-Methyl-4,6-Dinitrophenol	<5	5
Pentachlorophenol	<5	5
Phenol	<5	5
2,4,6-Trichlorophenol	<5	5

Primary Laboratories, Inc.
Results

20-Mar-09

Date Sampled: 15-Jan-09
Work Order No: 0901117-01
Client ID: **Final Effluent Grab**

Test Description	Final Result	Reporting Limit	Units of Measure	Method Numbers*	Date Analyzed	Tech. Initials
Pesticides						
Chlorpyrifos	<0.2	0.2	ug/L	622	11-Feb-09	SC**
Demeton	<1	1	ug/L	622	11-Feb-09	SC**
Guthion	<1	1	ug/L	622	11-Feb-09	SC**
Malathion	<1	1	ug/L	622	11-Feb-09	SC**
Parathion	<1	1	ug/L	622	11-Feb-09	SC**
Tributyltin	38	30	ng/L	GC/FPD	3-Feb-09	SC*

Date Sampled: 15-Jan-09
Work Order No: 0901117-01
Client ID: **Final Effluent Grab**

Test Description	Final Result	Reporting Limit	Units of Measure	Method Numbers*	Date Analyzed	Tech. Initials
Gross Alpha Particle	2.2 +/- 0.8	1.0	pCi/l	EPA 900.0	22-Jan-09	SC**
Beta & Photon Activity	33 +/- 1	1.4	pCi/l	EPA 900.0	22-Jan-09	SC**
Strontium-90	1.4 +/- 0.6	1.0	pCi/l	EPA 905.8	2-Feb-09	SC**
Tritium	55.7 +/- 83.9	135.3	pCi/l	EPA 906.0	4-Mar-09	SC**

** Analysis sub-contracted.

*All methods are from Standard Methods 18th Edition, unless otherwise noted.

Signature: David B. Stoneman for
Parry L. Bragg
Laboratory Manager

Date: 3--20-09

Callao Permit Results 5 pages

From: David Stoneman [primarylabs@erols.com]
Sent: Monday, March 23, 2009 9:11 AM
To: Mosca,Denise
Subject: Callao Permit Results

Attachments: Callao-1.pdf; Callao-2.pdf; Callao-3.pdf; Callao-4.pdf; Callao-5.pdf

Please find attached. 5 pages.

FACILITY NAME: Callao WWTP
ADDRESS: P. O. Box 129
Heathsville, Virginia 22473

Permit No. VA0091421

DEPARTMENT OF ENVIRONMENTAL QUALITY
WATER QUALITY MONITORING

OUTFALL NO. 001

CASRN#	CHEMICAL	EPA ANALYSIS NO.	QUANTIFICATION LEVEL[1]	REPORTING RESULTS	SAMPLE TYPE[2]		SAMPLE FREQUENCY[3]
	DISSOLVED METALS			ug/L			
7440-36-0	Antimony	(4)	0.2	<0.2	G		1/5 YR
7440-38-2	Arsenic	(4)	(6)	<50	G		1/5 YR
7440-43-9	Cadmium	(4)	0.3	<0.3	G		1/5 YR
16065-83-1	Chromium III	(4)	0.5	<0.5	G		1/5 YR
18540-29-9	Chromium VI	(4)	0.5	<0.5	G		1/5 YR
7440-50-8	Copper	(4)	0.5	<0.5	G		1/5 YR
7439-92-1	Lead	(4)	0.5	<0.5	G		1/5 YR
7439-97-6	Mercury	(4)	1.0	<0.2	G		1/5 YR
7440-02-0	Nickel	(4)	0.5	<0.5	G		1/5 YR
7782-49-2	Selenium	(4)	2.0	<2.0	G		1/5 YR
7440-22-4	Silver	(4)	0.2	<0.2	G		1/5 YR
7440-28-0	Thallium	(5)	(6)	<2	G		1/5 YR
7440-66-6	Zinc	(4)	2.0	42	G		1/5 YR
	PESTICIDES/PCB'S						
309-00-2	Aldrin	608	0.05	<0.05	G or C		1/5 YR
57-74-9	Chlordane	608	0.2	<0.1	G or C		1/5 YR
2921-88-2	Chlorpyrifos (Dursban)	622	(6)	<0.2	G or C		1/5 YR
72-54-8	DDD	608	0.1	<0.1	G or C		1/5 YR
72-55-9	DDE	608	0.1	<0.1	G or C		1/5 YR
50-29-3	DDT	608	0.1	<0.1	G or C		1/5 YR
8065-48-3	Demeton	(5)	(6)	<1	G or C		1/5 YR
60-57-1	Dieldrin	608	0.1	<0.1	G or C		1/5 YR
959-98-8	Alpha-Endosulfan	608	0.1	<0.1	G or C		1/5 YR
33213-65-9	Beta-Endosulfan	608	0.1	<0.1	G or C		1/5 YR
1031-07-8	Endosulfan Sulfate	608	0.1	<0.1	G or C		1/5 YR
72-20-8	Endrin	608	0.1	<0.1	G or C		1/5 YR
7421-93-4	Endrin Aldehyde	(5)	(6)	<0.5	G or C		1/5 YR

FACILITY NAME: Callao WWTP
ADDRESS: P. O. Box 129
Heathsville, Virginia 22473

Permit No. VA0091421

DEPARTMENT OF ENVIRONMENTAL QUALITY
WATER QUALITY MONITORING

ug/L

OUTFALL NO. 001

CASRN#	CHEMICAL	EPA ANALYSIS NO.	QUANTIFICATION LEVEL[4]	REPORTING RESULTS	SAMPLE TYPE[5]	SAMPLE FREQUENCY[6]
86-50-0	Guthion	622	(6)	<1	G or C	1/5 YR
76-44-8	Heptachlor	608	0.5	<0.1	G or C	1/5 YR
1024-57-3	Heptachlor Epoxide	(5)	(6)	<0.1	G or C	1/5 YR
319-84-6	Hexachlorocyclohexane Alpha-BHC	608	(5)	<0.1	G or C	1/5 YR
319-85-7	Hexachlorocyclohexane Beta-BHC	608	(5)	<0.1	G or C	1/5 YR
58-89-9	Hexachlorocyclohexane Gamma-BHC or Lindane	608	0.05	<0.05	G or C	1/5 YR
143-50-0	Kepone	(10)	(6)	<0.1	G or C	1/5 YR
121-75-5	Malathion	(5)	(6)	<1	G or C	1/5 YR
72-43-5	Methoxychlor	(5)	(6)	<0.1	G or C	1/5 YR
2385-85-5	Mirex	(5)	(6)	<0.1	G or C	1/5 YR
56-38-2	Parathion	(5)	(5)	<1	G or C	1/5 YR
11096-82-5	PCB 1260	608	1.0	<0.2	G or C	1/5 YR
11097-69-1	PCB 1254	608	1.0	<0.2	G or C	1/5 YR
12672-29-6	PCB 1248	608	1.0	<0.2	G or C	1/5 YR
53469-21-9	PCB 1242	608	1.0	<0.2	G or C	1/5 YR
11141-16-5	PCB 1232	608	1.0	<0.2	G or C	1/5 YR
11104-28-2	PCB 1221	608	1.0	<0.2	G or C	1/5 YR
12674-11-2	PCB 1016	608	1.0	<0.2	G or C	1/5 YR
1336-36-3	PCB Total	608	7.0	<0.2	G or C	1/5 YR
8001-35-2	Toxaphene	608	5.0	<0.1	G or C	1/5 YR
60-10-5	Tributyltin	(8)	(6)	.038	G or C	1/5 YR
BASE NEUTRAL EXTRACTABLES						
83-32-9	Acenaphthene	625	10.0	<5	G or C	1/5 YR
120-12-7	Anthracene	625	10.0	<5	G or C	1/5 YR
92-87-5	Benzidine	(5)	(6)	<5	G or C	1/5 YR
56-55-3	Benzo (a) anthracene	625	10.0	<5	G or C	1/5 YR
205-99-2	Benzo (b) fluoranthene	625	10.0	<5	G or C	1/5 YR
207-08-9	Benzo (k) fluoranthene	625	10.0	<5	G or C	1/5 YR
50-32-8	Benzo (a) pyrene	625	10.0	<5	G or C	1/5 YR

FACILITY NAME: Callao WWTP
ADDRESS: P. O. Box 129
Heathsville, Virginia 22473

Permit No. VA0091421

DEPARTMENT OF ENVIRONMENTAL QUALITY
WATER QUALITY MONITORING

ug/L

OUTFALL NO. 001

CASRN#	CHEMICAL	EPA ANALYSIS NO.	QUANTIFICATION LEVEL[7]	REPORTING RESULTS	SAMPLE TYPE[8]	SAMPLE FREQUENCY[9]
129-00-0	Pyrene	625	10.0	< 5	G or C	1/5 YR
120-82-1	1,2,4-Trichlorobenzene	625	10.0	< 5	G or C	1/5 YR
	VOLATILES					
107-02-8	Acrolein	(5)	(5)	< 5	G	1/5 YR
107-13-1	Acrylonitrile	(5)	(5)	< 5	G	1/5 YR
71-43-2	Benzene	624	10.0	< 5	G	1/5 YR
75-25-2	Bromoform	624	10.0	< 5	G	1/5 YR
56-23-5	Carbon Tetrachloride	624	10.0	< 5	G	1/5 YR
108-90-7	Chlorobenzene (synonym = monochlorobenzene)	624	50.0	< 5	G	1/5 YR
124-48-1	Chlorodibromomethane	624	10.0	< 5	G	1/5 YR
67-66-3	Chloroform	624	10.0	< 5	G	1/5 YR
75-09-2	Dichloromethane METHYLENE CHLORIDE	624	20.0	< 5	G	1/5 YR
75-27-4	Dichlorobromomethane	624	10.0	< 5	G	1/5 YR
107-06-2	1,2-Dichloroethane	624	10.0	< 5	G	1/5 YR
75-35-4	1,1-Dichloroethylene	624	10.0	< 5	G	1/5 YR
156-60-5	1,2-trans-dichloroethylene	(5)	(5)	< 5	G	1/5 YR
78-87-5	1,2-Dichloropropane	(5)	(5)	< 5	G	1/5 YR
542-75-6	1,3-Dichloropropene	(5)	(5)	< 5	G	1/5 YR
100-41-4	Ethylbenzene	624	10.0	< 5	G	1/5 YR
74-83-9	Methyl Bromide	(5)	(5)	< 5	G	1/5 YR
79-34-5	1,1,2,2-Tetrachloroethane	(5)	(5)	< 5	G	1/5 YR
127-18-4	Tetrachloroethylene	624	10.0	< 5	G	1/5 YR
10-88-3	Toluene	624	10.0	< 5	G	1/5 YR
79-00-5	1,1,2-Trichloroethane	(5)	(5)	< 5	G	1/5 YR
79-01-6	Trichloroethylene	624	10.0	< 5	G	1/5 YR
75-01-4	Vinyl Chloride	624	10.0	< 5	G	1/5 YR

FACILITY NAME: Callao WWTP
ADDRESS: P. O. Box 129
Heathsville, Virginia 22473

Permit No. VA0091421

DEPARTMENT OF ENVIRONMENTAL QUALITY
WATER QUALITY MONITORING

OUTFALL NO. 001

CAS/RN#	CHEMICAL	EPA ANALYSIS NO.	QUANTIFICATION LEVEL[1]	REPORTING RESULTS	SAMPLE TYPE[2]	SAMPLE FREQUENCY[3]
	RADIONUCLIDES			pCi/L		
	Strontium 90 (pCi/L)	(5)	(6)	1.4 ± 0.6	G or C	1/5 YR
	Tritium (pCi/L)	(5)	(6)	55.7 ± 93.9	G or C	1/5 YR
	Beta Particle & Photon Activity (mrem/yr)	(5)	(6)	33 ± 1	G or C	1/5 YR
	Gross Alpha Particle Activity (pCi/L)	(5)	(6)	2.2 ± 0.8	G or C	1/5 YR
	ACID EXTRACTABLES			ug/L		
95-57-8	2-Chlorophenol	625	10.0	< 5	G or C	1/5 YR
120-83-2	2,4 Dichlorophenol	625	10.0	< 5	G or C	1/5 YR
105-67-9	2,4 Dimethylphenol	625	10.0	< 5	G or C	1/5 YR
51-28-5	2,4-Dinitrophenol	(5)	(6)	< 5	G or C	1/5 YR
534-52-1	2-Methyl-4,6-Dinitrophenol	(5)	(6)	< 5	G or C	1/5 YR
87-86-5	Pentachlorophenol	625	50.0	< 5	G or C	1/5 YR
108-95-2	Phenol[7]	625	10.0	< 5	G or C	1/5 YR
88-06-2	2,4,6-Trichlorophenol	625	10.0	< 5	G or C	1/5 YR
	MISCELLANEOUS					
16887-00-6	Chlorides	(5)	(6)	41.5 mg/L		1/5 YR
57-12-5	Cyanide, Total	335.2	10.0	< 0.01	G	1/5 YR
7783-06-4	Hydrogen Sulfide	(5)	(6)	< 0.05	C	1/5 YR

Name of Principal Exec. Officer or Authorized Agent/Title

Signature of Principal Officer or Authorized Agent/Date

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment for knowing violations. See 18 U.S.C. Sec. 1001 and 33 U.S.C. Sec. 1319. (Penalties under these statutes may include fines up to $10,000 and or maximum imprisonment of between 6 months and 5 years.)

TO: SLB AT: 8044536042

ENVIROCOMPLIANCE LABORATORIES, INC

Certificate of Analysis

10357 Old Keeton Road
Ashland, Virginia 23005
Phone 804 550 3971
Fax 804 550 3926

Sterling Lee Bowles, III
Attn: Lee Bowles
P O. Box 202
Reedville, VA 22539

Project Name: Callao Wastewater Plant
Date Received: June 13, 2007
Date Sampled: June 13, 2007
Time Sampled: 10:00
Date Issued: June 22, 2007

Sample ID : Final Effluent

Parameter	Result	Units	DL	Date/Time Prepared	Date/Time Analyzed	Method	Analyst
CBOD	< 2	mg/l	2	06-13/1450	06-18/1330	5210B	R.R
TKN	< BDL	mg/l	.1	06-20/0915	06-20/1400	4500-NH3F	MDM
Fecal Coliform	2	MPN/100ml	2	06-13/1420	06-16/1605	9221E	SET
E. Coli	4	MPN/100ml	2	06-13/1415	06-16/1605	9221E	SET

BDL = Below Detection Limit
All methods are 40 CFR 136 March 12, 2007, Table IB approved.
Reference to Standard Methods is 18th ed.

Carrie E. Sisk
QA Coordinator

R7673238 1

ENVIROCOMPLIANCE LABORATORIES, INC.

Certificate of Analysis

10357 Old Keene Road
Ashland, Virginia 23005
Phone 804 550 3971
Fax 804 550 3826

Sterling Lee Bowles, III
Attn: Lee Bowles
P.O. Box 202
Reedville, VA 22539

Project Name: Callao Wastewater Plant
Date Received: June 05, 2007
Date Sampled: June 06, 2007
Time Sampled: 10:00
Date Issued: June 20, 2007

Lab # 1/Sample ID : Final Effluent

Parameter	Result	Units	DL	Date/Time Prepared	Date/Time Analyzed	Method	Analyst
CBOD	< 2	mg/l	2	06-06/1500	06-11/1415	52103	R.R
TKN	BDL	mg/l	1	06-12/1000	06-12/1416	4500-NH3FMDM	
TSS	< 1.0	mg/l	1.0	06-11/0915	06-12/0830	2540 D	ISW

Lab # 2/Sample ID : Final Effluent

Parameter	Result	Units	DL	Date/Time Prepared	Date/Time Analyzed	Method	Analyst
Fecal Coliform	< 2	MPN/100ml	2	06-06/1445	06-08/1350	9221E	SET
E Coli	< 2	MPN/100ml	2	06-06/1445	06-08/1355	9221E	SET

BDL = Below Detection Limit
All methods are 40 CFR 136 March 12, 2007, Table IB approved.
Reference to Standard Methods is 18th ed.

Carrie E. Sisk
QA Coordinator

R7673113-1

ENVIROCOMPLIANCE LABORATORIES, INC.

Certificate of Analysis

10351 Old Keaton Road
Ashland, Virginia 23005
Phone 804 550 3971
Fax 804 550 3828

Sterling Lee Bowles, III
Attn: Lee Bowles
P.O. Box 202
Reedville, VA 22539

Project Name : Callao Shops & Apartments
Date Received: June 20, 2007
Date Sampled : June 20, 2007
Time Sampled : 10:00
Date Issued : June 28, 2007

Sample ID : Final Effluent

Parameter		Result	Units	DL	Date/Time Prepared	Date/Time Analyzed	Method	Analyst
BOD	<	2	mg/l	2	06-20/1445	06-25/1310	5210 B	K.R
TKN		BDL	mg/l	.1	06-26/1330	06-27/1015	4500-NH3	MDM
Fecal Coliform	<	2	MPN/100ml	2	06-20/1435	06-23/1235	9221E	SET
E. Coli	<	2	MPN/100ml	2	06-20/1430	06-23/1230	9221E	SET

BDL = Below Detection Limit
All methods are 40 CFR 136 March 12, 2007, Table IB approved.
Reference to Standard Methods is 18th ed.

For
Laurie E. Sisk
QA Coordinator

R7673394-1

ENVIROCOMPLIANCE LABORATORIES, INC.

10357 Old Keeton Road
Ashland, Virginia 23005
Phone 804 550 3971
Fax 804 550 3826

Certificate of Analysis

Sterling Lee Bowles, III
Attn: Lee Bowles
P.O. Box 202
Reedville, VA 22539

Project Name : Callao Wastewater Plant
Date Received: June 26, 2007
Date Sampled : June 26, 2007
Time Sampled : 10:00
Date Issued : July 06, 2007

Lab # 1/Sample ID : Final Effluent

Parameter	Result	Units	DL	Date/Time Prepared	Date/Time Analyzed	Method	Analyst
CBOD	3	mg/l	2	06-26/1430	07-01/1230	5210B	R.R
TKN	BDL	mg/l	1	07-02/1340	07-03/1000	4500-NH3FMDM	

Lab # 2/Sample ID : Final Effluent

Parameter	Result	Units	DL	Date/Time Prepared	Date/Time Analyzed	Method	Analyst
Fecal Coliform	< 2	MPN/100ml	2	06-26/1445	06-29/1315	9221E	SET
E. Coli	< 2	MPN/100ml	2	06-26/1440	06-28/1415	9221E	SET

BDL = Below Detection Limit
All methods are 40 CFR 136 March 12, 2007, Table 1B approved
Reference to Standard Methods is 18th ed.

Carrie E. Sisk
QA Coordinator

R7673545-1

Primary Laboratories, Inc.

7423 Lee Davis Road • Mechanicsville, VA 23111 • Telephone (804) 559-9004 • Fax (804) 559-9306

ANALYTICAL LABORATORY REPORT

9-Sep-08

Callao Treatment Plant
Attn: Lee Bowles
104 Harryhogan Road
Callao, VA 22435

Date Received: 2-Sep-08
Date Sampled: 2-Sep-08
Work Order No: 0809005-01
Client ID: Final Effluent Composite

Test Description	Final Result	Reporting Limit	Units of Measure	Method Numbers*	Date Analyzed	Time Analyzed	Tech Initials
BOD	<5.0	5.0	mg/L	5210 B	4-Sep-08	7:50	NA
TKN	0.8	0.5	mg/L	4500 N/NH_3	9-Sep-08	13:30	NA
TSS	<1.0	1.0	mg/L	2540 D	8-Sep-08	11:30	AS
Fecal Coliform	<2	2	MPN/100ml	9221E	2-Sep-08	14:00	AS
E Coli	<2	2	MPN/100ml	9221F	2-Sep-08	14:00	AS

*All methods are from Standard Methods 18th Edition, unless otherwise noted.

Signature: _____ Date: 9-9-08

Parry L. Bragg
Laboratory Manager

Primary Laboratories, Inc.

7423 Lee Davis Road • Mechanicsville, VA 23111 • Telephone (804) 559-9004 • Fax (804) 559-9306

ANALYTICAL LABORATORY REPORT

22-Sep-08

Colleo Treatment Plant
Attn: Lee Bowles
104 Harryhogan Road
Colleo, VA 22435

Date Received: 15-Sep-08
Date Sampled: 15-Sep-08
Work Order No: 0809109-01
Client ID: Final Effluent Composite

Test Description	Final Result	Reporting Limit	Units of Measure	Method Numbers*	Date Analyzed	Time Analyzed	Tech. Initials
CBOD	<5.0	5.0	mg/L	5210 B	17-Sep-08	7:30	NA
TKN	<0.5	0.5	mg/L	4500 N/NH_3	18-Sep-08	8:00	NA
TSS	<1.0	1.0	mg/L	2540 D	16-Sep-08	12:00	AS
Fecal Coliform	<2	2	MPN/100ml	9221E	15-Sep-08	14:00	AS
E Coli	<2	2	MPN/100ml	9221F	15-Sep-08	14:00	AS

*All methods are from Standard Methods 18th Edition, unless otherwise noted.

Signature: _____ Date: 9/22/08

Perry L. Bridge
Laboratory Manager

Primary Laboratories, Inc.

7423 Lee Davis Road • Mechanicsville, VA 23111 • Telephone (804) 559-9004 • Fax (804) 559-9306

ANALYTICAL LABORATORY REPORT

12-Jan-09

Callao Treatment Plant
Attn: Lee Bowles
104 Harryhogan Road
Callao, VA 22435

Date Received: 5-Jan-09
Date Sampled: 5-Jan-09
Work Order No: 0901010-01
Client ID: **Final Effluent Composite**

Test Description	Final Result	Reporting Limit	Units of Measure	Method Numbers*	Date Analyzed	Time Analyzed	Tech. Initials
CBOD	<5.0	5.0	mg/L	5210 B	7-Jan-09	7:45	NA
TKN	1.12	0.50	mg/L	4500 N/NH_3	8-Jan-09	16:00	NA
TSS	<1.0	1.0	mg/L	2540 D	5-Jan-09	13:30	AS

Date Sampled: 5-Jan-09
Work Order No: 0901010-02
Client ID: **Final Effluent Grab**

Test Description	Final Result	Reporting Limit	Units of Measure	Method Numbers*	Date Analyzed	Time Analyzed	Tech. Initials
Fecal Coliform	2	2	MPN/100ml	9221E	5-Jan-09	14:00	AS
E Coli	<2	2	MPN/100ml	9221F	5-Jan-09	14:00	AS

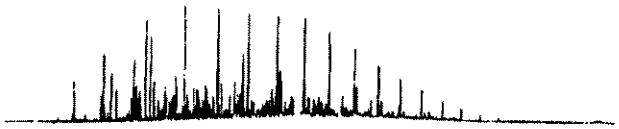
*All methods are from Standard Methods 18th Edition, unless otherwise noted.

Signature: _____ Date: 1/12/09

Patty L. Bragg
Laboratory Manager

Primary Laboratories, Inc.

7423 Lee Davis Road • Mechanicsville, VA 23111 • Telephone (804) 559-9004 • Fax (804) 559-9306



ANALYTICAL LABORATORY REPORT

22-Jan-09

Callao Treatment Plant
Attn: Lee Bowles
104 Harryhogan Road
Callao, VA 22435

Date Received: 13-Jan-09
Date Sampled: 13-Jan-09
Work Order No: 0901087-01
Client ID: **Final Effluent Composite**

Test Description	Final Result	Reporting Limit	Units of Measure	Method Numbers*	Date Analyzed	Time Analyzed	Tech. Initials
CBOD	<5.0	5.0	mg/L	5210 B	14-Jan-09	8:00	NA
TKN	0.56	0.50	mg/L	4500 N/NH_3	22-Jan-09	8:00	NA

Date Sampled: 13-Jan-09
Work Order No: 0901087-02
Client ID: **Final Effluent Grab**

Test Description	Final Result	Reporting Limit	Units of Measure	Method Numbers*	Date Analyzed	Time Analyzed	Tech. Initials
Fecal Coliform	<2	2	MPN/100ml	9221E	13-Jan-09	14:00	AS
E Coli	<2	2	MPN/100ml	9221F	13-Jan-09	14:00	AS

*All methods are from Standard Methods 18th Edition, unless otherwise noted.

Signature: Patty Bragg Date: 1/22/09
Patty L. Bragg
Laboratory Manager

Primary Laboratories, Inc.

7423 Lee Davis Road • Mechanicsville, VA 23111 • Telephone (804) 559-9004 • Fax (804) 559-9306

ANALYTICAL LABORATORY REPORT

27-Jan-09

Callao Treatment Plant
Attn: Lee Bowles
104 Harryhogan Road
Callao, VA 22435

Date Received: 20-Jan-09
Date Sampled: 20-Jan-09
Work Order No: 0901144-01
Client ID: **Final Effluent Composite**

Test Description	Final Result	Reporting Limit	Units of Measure	Method Numbers*	Date Analyzed	Time Analyzed	Tech. Initials
CBOD	<5.0	5.0	mg/L	5210 B	21-Jan-09	12:00	NA
TKN	1.68	0.50	mg/L	4500 N/NH_3	26-Jan-09	15:00	NA

Date Sampled: 20-Jan-09
Work Order No: 0901144-02
Client ID: **Final Effluent Grab**

Test Description	Final Result	Reporting Limit	Units of Measure	Method Numbers*	Date Analyzed	Time Analyzed	Tech. Initials
Fecal Coliform	<2	2	MPN/100ml	9221E	20-Jan-09	14:00	AS
E Coli	<2	2	MPN/100ml	9221F	20-Jan-09	14:00	AS

*All methods are from Standard Methods 18th Edition, unless otherwise noted.

Signature: _____ Date: 1/27/09
Parry L. Bragg
Laboratory Manager

Primary Laboratories, Inc.

7423 Lee Davis Road • Mechanicsville, VA 23111 • Telephone (804) 559-9004 • Fax (804) 559-9306

ANALYTICAL LABORATORY REPORT

2-Feb-09

Callao Treatment Plant
Attn: Lee Bowles
104 Harryhogan Road
Callao, VA 22435

Date Received: 26-Jan-09
Date Sampled: 26-Jan-09
Work Order No: 0901199-01
Client ID: **Final Effluent Composite**

Test Description	Final Result	Reporting Limit	Units of Measure	Method Numbers*	Date Analyzed	Time Analyzed	Tech. Initials
CBOD	<5.0	5.0	mg/L	5210 B	28-Jan-09	8:00	NA
TKN	1.4	0.5	mg/L	4500 N/NH_3	26-Jan-09	15:00	NA

Date Sampled: 26-Jan-09
Work Order No: 0901199-02
Client ID: **Final Effluent Grab**

Test Description	Final Result	Reporting Limit	Units of Measure	Method Numbers*	Date Analyzed	Time Analyzed	Tech. Initials
Fecal Coliform	<2	2	MPN/100ml	9221E	26-Jan-09	14:00	AS
E Coli	<2	2	MPN/100ml	9221F	26-Jan-09	14:00	AS

*All methods are from Standard Methods 18th Edition, unless otherwise noted.

Signature: _____ Date: 2-2-09

Parry L. Bragg
Laboratory Manager

Attachment E

Stream Sanitation Analysis

MEMORANDUM

DEPARTMENT OF ENVIRONMENTAL QUALITY
Piedmont Water Regional Office

4949-A Cox Road, Glen Allen, VA 23060-6296 804/527-5020

SUBJECT: **Stream Sanitation Analysis – UT to Lodge Creek**
Expansion of Permitted Discharge for Callao Shops & Apartments STP (VA0091421)

TO: **Denise Mosca**

FROM: **Jennifer Palmore**

DATE: **February 5, 2004**

A request for a stream sanitation analysis for Callao Shops and Apartments was originally received on November 3, 2003. The discharge is currently permitted under VA0020885 and handles a former elementary school that is currently shops and apartments. The stream sanitation request was submitted because Northumberland County intends to acquire the treatment plant property and increase the plant design flow from 0.0035 MGD to 0.06 MGD to accommodate sewage from the town of Callao. The current plant will be replaced with an extended air system with chlorination, dechlorination, and final aeration.

Background

The outfall discharges to an intermittent unnamed tributary to Lodge Creek in watershed VAP-A33R. Steven Stell performed a facility inspection in January 2003 and found an unpermitted bypass and sludge deposits, low dissolved oxygen (2.55 mg/L) and a septic odor in the receiving stream. He revisited the site in May 2003 and reported that the leak was repaired and the receiving stream was almost dry. The site inspection memorandums are attached.

The discharge was previously modeled around 1977 and remodeled in 1987. It was noted that the receiving stream is a dry ravine. The model calculations cannot be located, however several memorandums regarding the facility are attached.

Results

A site visit was performed on January 22, 2004 by Jennifer Palmore and Amanda McKee. The treatment plant had been discharging for the previous 3 days, so the receiving stream had flowing water, but lacked the defined stream channel and characteristics necessary for the use of Regional Model 4.1. In two locations, the flow disappeared from view for approximately 50 feet under heavy leaf litter and soil. During the site inspection, the dissolved oxygen downstream of the outfall was 11 mg/L.

As this stream is deemed unmodelable by the Regional Model 4.1, it is recommended that effluent limits for this discharge be established based on Best Professional Judgement in accordance with A.J. Anthony's Swamp Limits memorandum (A.J. Anthony, 1987), which recommends the following limits, regardless of flow.

$cBOD_5$:	10 mg/L
TSS:	10 mg/L
TKN:	3 mg/L
Cl_2:	0.011 mg/L

In addition, it is recommended that the dissolved oxygen limit in the effluent be established at 5 mg/L.

If you have any questions or need any additional information, please do not hesitate to contact me.

Attachment F

Site Visit and Inspection Report

VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

Piedmont Regional Office

SCHEDULED INSPECTION REPORT

FACILITY NAME:	Callao WWTP	**INSPECTOR:**	Mike Dare
PERMIT No.:	VA0091421	**INSPECTION DATE:**	April 4, 2007
TYPE OF FACILITY:	Municipal Minor	**TIME OF INSPECTION:**	9:10 AM – 10:55AM
COUNTY/CITY:	Northumberland Co.	**REPORT COMPLETED:**	April 16, 2007
REVIEWED BY:		**UNANNOUNCED INSPECTION:**	YES

PRESENT DURING INSPECTION: Joe Gordon (Class IV), Clifton Bowles (Trainee)

INSPECTION OVERVIEW AND CONDITION OF TREATMENT UNITS

The newly constructed Callao WWTP, which began operating in 2006, runs 24 hours a day, 7 days a week. Operators are in and out of the facility, Monday through Friday between 7:30 AM and 4:30 PM, and on site approximately 4 hours each day on Saturday and Sunday. A computer controls plant operations and if alarms occur when unstaffed, calls the Reedville WWTP and Operator's cell and home phones. Lee Bowles, a Class III Operator, was not present during the inspection.

Influent zone: Incoming flow first enters the plant at the head of the influent zone. This zone consists of an equalization tank and an anoxic tank which are operated in series. (The equalization and anoxic aspects of the tanks were not being utilized at the time of inspection.) There are mixing pumps located in both of these tanks. Aeration pumps located in the anoxic tank were operating at the time of inspection. Activated sludge from the membrane chamber – located later in the process – is returned (RAS) to the equalization tank. The flow moves through the influent zone to the screen.

Screen: The mechanical screen removes approximately three gallons of screenings daily. The screenings are limed and placed in a dumpster for disposal at a landfill. (It was reported that because the screens were removing some solids along with the paper products – a condition that could become a larger issue as plant flow increases over time - the screen unit will be relocated to a point on the influent line just prior to the influent zone.) The flow moves through the screen and mixes with activated sludge in the aeration chamber.

Aeration Chamber: The aeration chamber consists of two tanks operated in series. Two blowers are available to meet the mixing and dissolved oxygen requirements of the activated sludge in the aeration chamber. (Typically, the running of only one blower at a time is required.) The activated sludge moves through the aeration chamber to the membrane chamber.

Membrane Chamber: Solids are filtered out of the flow in the membrane chamber via a membrane filter. (The membrane filter media resembles dental floss.) The solids are returned to the equalization tank while the filtered liquid is pumped to the UV treatment system.

UV (disinfection) Treatment System: The UV treatment system consists of two troughs with a six bulb UV module located in each trough. Only one trough/module is used at a time. Disinfected flow moves to the re-aeration chamber.

Re-aeration chamber: The flow in the re-aeration chamber is aerated and sampled (auto-sampler) before flowing to the outfall line.

Flow measurement: The plant effluent flow is measured via a magmeter located on the pressurized line prior to the UV treatment system.

Sludge Holding Tank: Periodically, sludge is wasted from the membrane tank to the sludge holding tank. Liquid sludge will be removed from the sludge holding tank when the tank is 80% full. The liquid sludge will be transported to the Reedville WWTP where it will be applied to sludge drying beds. The sludge holding tank was 67% full at the time of inspection.

Backup Generator: The facility has a backup generator and power transfer switch which are tested weekly.

EFFLUENT and FIELD DATA:

Effluent Flow	10.3 gpm @ 9:55 AM Tot: 6363 x 1000	**Dissolved Oxygen**	8.7 mg/L	**Contact Chlorine Residual**	N/A
pH	7.7 SU	**Final Chlorine Res.**	N/A	**Sample Temperature**	21 deg C

Calibration Time/Initials/documentation: Sampling performed by Joe Gordon at approx. 8:30 AM 4/4/07

Condition of Outfall and Receiving Stream: The effluent at the discharge point was clear with no evidence of solids or foam.

COMMENTS:

Items evaluated during this inspection include (check all that apply):

[X] Yes	[ ] No		Operational Units
[X] Yes	[ ] No		O & M Manual
[X] Yes	[ ] No		Maintenance Records
[ ] Yes	[ ] No	[X] N/A	Pathogen Reduction & Vector Attraction Reduction
[X] Yes	[ ] No	[ ] N/A	Sludge Disposal Plan
[ ] Yes	[ ] No	[X] N/A	Groundwater Monitoring Plan
[ ] Yes	[ ] No	[X] N/A	Storm Water Pollution Prevention Plan
[X] Yes	[ ] No	[ ] N/A	Permit Special Conditions
[ ] Yes	[ ] No	[X] N/A	Permit Water Quality Chemical Monitoring
[X] Yes	[ ] No	[ ] N/A	Laboratory Records (see Lab Report)

GENERAL RECOMMENDATIONS:

Ensure that the construction contractor completes outstanding projects - including installation of the membrane back-flush system and instruction of Operators on UV lamp cleaning - in a timely manner.

COMPLIANCE RECOMMENDATIONS/REQUEST FOR CORRECTIVE ACTION:

1. Evidence of calibration of the effluent magmeter could not be located at the time of inspection. Please submit manufacturer meter calibration certification. Calibration must be performed at least annually.

2. Begin maintaining a Daily Operations Log. This log should include, at a minimum, personnel on duty and operational and maintenance conditions.

3. In the original plant design, approved by the DEQ, returned solids (RAS) from the membrane chamber are mixed with incoming flow in the equalization tank. This combined flow then moves through the anoxic tank to the screening unit. It was reported that the screening unit will be relocated from the designed location to a point on the influent line just prior to the equalization tank. If the screening unit will no longer screen the combined influent/RAS flow, then the new location must be approved by Mr. Reed Barrows (PRO Wastewater Treatment Engineer) prior to relocating. Update O&M Manual with any changes.

Copies: DEQ - OWPP (attn.: S. Stell)
DEQ – Technical File

Attachment G

Facility Effluent Data Evaluation

4/1/2009 2:18:56 PM

Facility = Callao WWTP VA0091421
Chemical = Chloride
Chronic averaging period = 4
WLAa = 860
WLAc = 230
Q.L. = 0.01
# samples/mo. = 1
# samples/wk. = 1

Summary of Statistics:

observations = 1
Expected Value = 41.5
Variance = 620.01
C.V. = 0.6
97th percentile daily values = 100.986
97th percentile 4 day average = 69.0472
97th percentile 30 day average= 50.0512
< Q.L. = 0
Model used = BPJ Assumptions, type 2 data

No Limit is required for this material

The data are:

41.5 mg/l; this data is from the application.

5/11/2009 2:39:41 PM

Facility = Callao WWTP VA0091421
Chemical = Ammonia
Chronic averaging period = 30
WLAa = 3.9
WLAc = 0.51
Q.L. = 0.2
# samples/mo. = 4
# samples/wk. = 1

Summary of Statistics:

observations = 1
Expected Value = 3
Variance = 3.24
C.V. = 0.6
97th percentile daily values = 7.30025
97th percentile 4 day average = 4.99137
97th percentile 30 day average= 3.61815
< Q.L. = 0
Model used = BPJ Assumptions, type 2 data

A limit is needed based on Chronic Toxicity
Maximum Daily Limit = 1.02901174764232
Average Weekly limit = 1.02901174764232
Average Monthly LImit = 0.70356179995844

The data are:

3.0

Instead of using an assumed data value of 9.0 mg/l as described in DEQ Guidance Memo No. 00-2011, an ammonia data point of 3.0 mg/l was used because of the existing TKN limit of 3.0 mg/l. Ammonia is a component of TKN and should not exceed the TKN limit. See Fact Sheet Section 16. Effluent Screening & Limitation Development.

3/25/2009 5:33:51 PM

Facility = Callao WWTP VA0091421
Chemical = TBT
Chronic averaging period = 4
WLAa = 0.46
WLAc = 0.063
Q.L. = 0.030
# samples/mo. = 1
# samples/wk. = 1

Summary of Statistics:

observations = 1
Expected Value = .038
Variance = .000519
C.V. = 0.6
97th percentile daily values = .092469
97th percentile 4 day average = .063224
97th percentile 30 day average= .045830
< Q.L. = 0
Model used = BPJ Assumptions, type 2 data

A limit is needed based on Chronic Toxicity
Maximum Daily Limit = 9.21422113953536E-02
Average Weekly limit = 9.21422113953536E-02
Average Monthly LImit = 9.21422113953536E-02

The data are:

0.038 ug/l; this data is from the application.

5/6/2009 5:59:03 PM

Facility = Callao WWTP VA0091421
Chemical = TRC
Chronic averaging period = 4
WLAa = 19
WLAc = 11
Q.L. = 10
# samples/mo. = 90
# samples/wk. = 21

Summary of Statistics:

observations = 1
Expected Value = 20000
Variance = 1440000
C.V. = 0.6
97th percentile daily values = 48668.3
97th percentile 4 day average = 33275.8
97th percentile 30 day average= 24121.0
< Q.L. = 0
Model used = BPJ Assumptions, type 2 data

A limit is needed based on Chronic Toxicity
Maximum Daily Limit = 16.0883226245855
Average Weekly limit = 8.37736286379464
Average Monthly LImit = 7.39793639872119

The data are:

20000 ug/l

In accordance with the current 2007 permit manual, an assumed value of 20000 ug/l is entered into this program to force a limit.

3/24/2009 6:39:25 PM

Facility = Callao WWTP VA0091421
Chemical = Zinc
Chronic averaging period = 4
WLAa = 82
WLAc = 83
Q.L. = 10
# samples/mo. = 1
# samples/wk. = 1

Summary of Statistics:

observations = 1
Expected Value = 42
Variance = 635.04
C.V. = 0.6
97th percentile daily values = 102.203
97th percentile 4 day average = 69.8791
97th percentile 30 day average= 50.6542
< Q.L. = 0
Model used = BPJ Assumptions, type 2 data

A limit is needed based on Acute Toxicity
Maximum Daily Limit = 82 ug/l
Average Weekly limit = 82 ug/l
Average Monthly Limit = 82 ug/l

The data are:

42 ug/l (from the application)

There is a human health WLA of 6.9 x 10E4 ug/l for zinc. Because that amount is so much higher than the 82 ug/l monthly and weekly average limit for zinc, that limit is expected to also be protective of human health.

Attachment H

MSTRANTI Printout and MSTRANTI Data Source Report

MSTRANTI DATA SOURCE REPORT

Stream information NA—Callao WWTP Effluent Data Used Instead	
Mean Hardness	Permit application
90% Temperature (annual)	Facility DMR data – Jun-Aug 2008 attachments to the DMR showed 29 deg. C as maximum.
90% Temperature (wet season)	Not used
90% Maximum pH	Facility DMR data
10% Maximum pH	Facility DMR data
Tier Designation	Tier Determination (Item 14 in Fact Sheet)
Stream Flows	
All Data	See flow frequencies (Item 5 in Fact Sheet)
Mixing Information- NA	
Mixing Information is not indicated because the stream is 100% comprised of treatment plant effluent.	
Effluent Information	
Mean Hardness	Application data used.
90% Temperature	Same as above.
90% Maximum pH	Same as above.
10% Maximum pH	Same as above.
Discharge flow	Design flow obtained from permit application

Data Location:

Flow Frequency Description – Attachment A
Effluent Data – Attachment D

FRESHWATER
WATER QUALITY CRITERIA / WASTELOAD ALLOCATION ANALYSIS

Facility Name: Callao WWTP Permit No.: VA0091421

Receiving Stream: UTRIB Lodge Creek Version: OWP Guidance Memo 00-2011 (8/24/00)

Stream Information		
Mean Hardness (as CaCO3) =	65.6	mg/L
90% Temperature (Annual) =	29	deg C
90% Temperature (Wet season) =	NA	deg C
90% Maximum pH =	8.4	SU
10% Maximum pH =	7.4	SU
Tier Designation (1 or 2) =	1	
Public Water Supply (PWS) Y/N? =	n	
Trout Present Y/N? =	n	
Early Life Stages Present Y/N? =	y	

Stream Flows		
1Q10 (Annual) =	0	MGD
7Q10 (Annual) =	0	MGD
30Q10 (Annual) =	0	MGD
1Q10 (Wet season) =	0	MGD
30Q10 (Wet season)	0	MGD
30Q5 =	0	MGD
Harmonic Mean =	0	MGD
Annual Average =	0	MGD

Mixing Information		
Annual - 1Q10 Mix =	100	%
- 7Q10 Mix =	100	%
- 30Q10 Mix =	100	%
Wet Season - 1Q10 Mix =	100	%
- 30Q10 Mix =	100	%

Effluent Information		
Mean Hardness (as CaCO3) =	65.6	mg/L
90% Temp (Annual) =	29	deg C
90% Temp (Wet season) =		deg C
90% Maximum pH =	8.4	SU
10% Maximum pH =	7.4	SU
Discharge Flow =	0.06	MGD

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				**Most Limiting Allocations**			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	**Acute**	**Chronic**	**HH (PWS)**	**HH**
Acenapthene	0	--	--	na	2.7E+03	--	--	na	2.7E+03	--	--	--	--	--	--	--	--	--	--	na	**2.7E+03**
Acrolein	0	--	--	na	7.8E+02	--	--	na	7.8E+02	--	--	--	--	--	--	--	--	--	--	na	**7.8E+02**
Acrylonitrile [C]	0	--	--	na	6.6E+00	--	--	na	6.6E+00	--	--	--	--	--	--	--	--	--	--	na	**6.6E+00**
Aldrin [C]	0	3.0E+00	--	na	1.4E-03	3.0E+00	--	na	1.4E-03	--	--	--	--	--	--	--	--	**3.0E+00**	--	na	**1.4E-03**
Ammonia-N (mg/l) (Yearly)	0	3.88E+00	5.07E-01	na	--	3.9E+00	5.1E-01	na	--	--	--	--	--	--	--	--	--	**3.9E+00**	**5.1E-01**	na	--
Ammonia-N (mg/l) (High Flow)	0	3.88E+00	#VALUE!	na	--	3.9E+00	#######	na	--	--	--	--	--	--	--	--	--	**3.9E+00**	**#VALUE!**	na	--
Anthracene	0	--	--	na	1.1E+05	--	--	na	1.1E+05	--	--	--	--	--	--	--	--	--	--	na	**1.1E+05**
Antimony	0	--	--	na	4.3E+03	--	--	na	4.3E+03	--	--	--	--	--	--	--	--	--	--	na	**4.3E+03**
Arsenic	0	3.4E+02	1.5E+02	na	--	3.4E+02	1.5E+02	na	--	--	--	--	--	--	--	--	--	**3.4E+02**	**1.5E+02**	na	--
Barium	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Benzene [C]	0	--	--	na	7.1E+02	--	--	na	7.1E+02	--	--	--	--	--	--	--	--	--	--	na	**7.1E+02**
Benzidine [C]	0	--	--	na	5.4E-03	--	--	na	5.4E-03	--	--	--	--	--	--	--	--	--	--	na	**5.4E-03**
Benzo (a) anthracene [C]	0	--	--	na	4.9E-01	--	--	na	4.9E-01	--	--	--	--	--	--	--	--	--	--	na	**4.9E-01**
Benzo (b) fluoranthene [C]	0	--	--	na	4.9E-01	--	--	na	4.9E-01	--	--	--	--	--	--	--	--	--	--	na	**4.9E-01**
Benzo (k) fluoranthene [C]	0	--	--	na	4.9E-01	--	--	na	4.9E-01	--	--	--	--	--	--	--	--	--	--	na	**4.9E-01**
Benzo (a) pyrene [C]	0	--	--	na	4.9E-01	--	--	na	4.9E-01	--	--	--	--	--	--	--	--	--	--	na	**4.9E-01**
Bis2-Chloroethyl Ether	0	--	--	na	1.4E+01	--	--	na	1.4E+01	--	--	--	--	--	--	--	--	--	--	na	**1.4E+01**
Bis2-Chloroisopropyl Ether	0	--	--	na	1.7E+05	--	--	na	1.7E+05	--	--	--	--	--	--	--	--	--	--	na	**1.7E+05**
Bromoform [C]	0	--	--	na	3.6E+03	--	--	na	3.6E+03	--	--	--	--	--	--	--	--	--	--	na	**3.6E+03**
Butylbenzylphthalate	0	--	--	na	5.2E+03	--	--	na	5.2E+03	--	--	--	--	--	--	--	--	--	--	na	**5.2E+03**
Cadmium	0	2.4E+00	8.1E-01	na	--	2.4E+00	8.1E-01	na	--	--	--	--	--	--	--	--	--	**2.4E+00**	**8.1E-01**	na	--
Carbon Tetrachloride [C]	0	--	--	na	4.4E+01	--	--	na	4.4E+01	--	--	--	--	--	--	--	--	--	--	na	**4.4E+01**
Chlordane [C]	0	2.4E+00	4.3E-03	na	2.2E-02	2.4E+00	4.3E-03	na	2.2E-02	--	--	--	--	--	--	--	--	**2.4E+00**	**4.3E-03**	na	**2.2E-02**
Chloride	0	8.6E+05	2.3E+05	na	--	8.6E+05	2.3E+05	na	--	--	--	--	--	--	--	--	--	**8.6E+05**	**2.3E+05**	na	--
TRC	0	1.9E+01	1.1E+01	na	--	1.9E+01	1.1E+01	na	--	--	--	--	--	--	--	--	--	**1.9E+01**	**1.1E+01**	na	--
Chlorobenzene	0	--	--	na	2.1E+04	--	--	na	2.1E+04	--	--	--	--	--	--	--	--	--	--	na	**2.1E+04**

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Chlorodibromomethane[C]	0	--	--	na	3.4E+02	--	--	na	3.4E+02	--	--	--	--	--	--	--	--	--	--	na	3.4E+02
Chloroform [C]	0	--	--	na	2.9E+04	--	--	na	2.9E+04	--	--	--	--	--	--	--	--	--	--	na	2.9E+04
2-Chloronaphthalene	0	--	--	na	4.3E+03	--	--	na	4.3E+03	--	--	--	--	--	--	--	--	--	--	na	4.3E+03
2-Chlorophenol	0	--	--	na	4.0E+02	--	--	na	4.0E+02	--	--	--	--	--	--	--	--	--	--	na	4.0E+02
Chlorpyrifos	0	8.3E-02	4.1E-02	na	--	8.3E-02	4.1E-02	na	--	--	--	--	--	--	--	--	--	8.3E-02	4.1E-02	na	--
Chromium III	0	4.0E+02	5.2E+01	na	--	4.0E+02	5.2E+01	na	--	--	--	--	--	--	--	--	--	4.0E+02	5.2E+01	na	--
Chromium VI	0	1.6E+01	1.1E+01	na	--	1.6E+01	1.1E+01	na	--	--	--	--	--	--	--	--	--	1.6E+01	1.1E+01	na	--
Chromium, Total	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Chrysene [C]	0	--	--	na	4.9E-01	--	--	na	4.9E-01	--	--	--	--	--	--	--	--	--	--	na	4.9E-01
Copper	0	9.0E+00	6.2E+00	na	--	9.0E+00	6.2E+00	na	--	--	--	--	--	--	--	--	--	9.0E+00	6.2E+00	na	--
Cyanide	0	2.2E+01	5.2E+00	na	2.2E+05	2.2E+01	5.2E+00	na	2.2E+05	--	--	--	--	--	--	--	--	2.2E+01	5.2E+00	na	2.2E+05
DDD [C]	0	--	--	na	8.4E-03	--	--	na	8.4E-03	--	--	--	--	--	--	--	--	--	--	na	8.4E-03
DDE [C]	0	--	--	na	5.9E-03	--	--	na	5.9E-03	--	--	--	--	--	--	--	--	--	--	na	5.9E-03
DDT [C]	0	1.1E+00	1.0E-03	na	5.9E-03	1.1E+00	1.0E-03	na	5.9E-03	--	--	--	--	--	--	--	--	1.1E+00	1.0E-03	na	5.9E-03
Demeton	0	--	1.0E-01	na	--	--	1.0E-01	na	--	--	--	--	--	--	--	--	--	--	1.0E-01	na	--
Dibenz(a,h)anthracene [C]	0	--	--	na	4.9E-01	--	--	na	4.9E-01	--	--	--	--	--	--	--	--	--	--	na	4.9E-01
Dibutyl phthalate	0	--	--	na	1.2E+04	--	--	na	1.2E+04	--	--	--	--	--	--	--	--	--	--	na	1.2E+04
Dichloromethane (Methylene Chloride) [C]	0	--	--	na	1.6E+04	--	--	na	1.6E+04	--	--	--	--	--	--	--	--	--	--	na	1.6E+04
1,2-Dichlorobenzene	0	--	--	na	1.7E+04	--	--	na	1.7E+04	--	--	--	--	--	--	--	--	--	--	na	1.7E+04
1,3-Dichlorobenzene	0	--	--	na	2.6E+03	--	--	na	2.6E+03	--	--	--	--	--	--	--	--	--	--	na	2.6E+03
1,4-Dichlorobenzene	0	--	--	na	2.6E+03	--	--	na	2.6E+03	--	--	--	--	--	--	--	--	--	--	na	2.6E+03
3,3-Dichlorobenzidine[C]	0	--	--	na	7.7E-01	--	--	na	7.7E-01	--	--	--	--	--	--	--	--	--	--	na	7.7E-01
Dichlorobromomethane [C]	0	--	--	na	4.6E+02	--	--	na	4.6E+02	--	--	--	--	--	--	--	--	--	--	na	4.6E+02
1,2-Dichloroethane [C]	0	--	--	na	9.9E+02	--	--	na	9.9E+02	--	--	--	--	--	--	--	--	--	--	na	9.9E+02
1, 1-Dichloroethylene	0	--	--	na	1.7E+04	--	--	na	1.7E+04	--	--	--	--	--	--	--	--	--	--	na	1.7E+04
1,2-trans-dichloroethylene	0	--	--	na	1.4E+05	--	--	na	1.4E+05	--	--	--	--	--	--	--	--	--	--	na	1.4E+05
2,4-Dichlorophenol	0	--	--	na	7.9E+02	--	--	na	7.9E+02	--	--	--	--	--	--	--	--	--	--	na	7.9E+02
2,4-Dichlorophenoxy acetic acid (2,4-D)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
1,2-Dichloropropane[C]	0	--	--	na	3.9E+02	--	--	na	3.9E+02	--	--	--	--	--	--	--	--	--	--	na	3.9E+02
1,3-Dichloropropene	0	--	--	na	1.7E+03	--	--	na	1.7E+03	--	--	--	--	--	--	--	--	--	--	na	1.7E+03
Dieldrin [C]	0	2.4E-01	5.6E-02	na	1.4E-03	2.4E-01	5.6E-02	na	1.4E-03	--	--	--	--	--	--	--	--	2.4E-01	5.6E-02	na	1.4E-03
Diethyl Phthalate	0	--	--	na	1.2E+05	--	--	na	1.2E+05	--	--	--	--	--	--	--	--	--	--	na	1.2E+05
Di-2-Ethylhexyl Phthalate [C]	0	--	--	na	5.9E+01	--	--	na	5.9E+01	--	--	--	--	--	--	--	--	--	--	na	5.9E+01
2,4-Dimethylphenol	0	--	--	na	2.3E+03	--	--	na	2.3E+03	--	--	--	--	--	--	--	--	--	--	na	2.3E+03
Dimethyl Phthalate	0	--	--	na	2.9E+06	--	--	na	2.9E+06	--	--	--	--	--	--	--	--	--	--	na	2.9E+06
Di-n-Butyl Phthalate	0	--	--	na	1.2E+04	--	--	na	1.2E+04	--	--	--	--	--	--	--	--	--	--	na	1.2E+04
2,4 Dinitrophenol	0	--	--	na	1.4E+04	--	--	na	1.4E+04	--	--	--	--	--	--	--	--	--	--	na	1.4E+04
2-Methyl-4,6-Dinitrophenol	0	--	--	na	7.65E+02	--	--	na	7.7E+02	--	--	--	--	--	--	--	--	--	--	na	7.7E+02
2,4-Dinitrotoluene [C]	0	--	--	na	9.1E+01	--	--	na	9.1E+01	--	--	--	--	--	--	--	--	--	--	na	9.1E+01
Dioxin (2,3,7,8-tetrachlorodibenzo-p-dioxin) (ppq)	0	--	--	na	1.2E-06	--	--	na	na	--	--	--	--	--	--	--	--	--	--	na	na
1,2-Diphenylhydrazine[C]	0	--	--	na	5.4E+00	--	--	na	5.4E+00	--	--	--	--	--	--	--	--	--	--	na	5.4E+00
Alpha-Endosulfan	0	2.2E-01	5.6E-02	na	2.4E+02	2.2E-01	5.6E-02	na	2.4E+02	--	--	--	--	--	--	--	--	2.2E-01	5.6E-02	na	2.4E+02
Beta-Endosulfan	0	2.2E-01	5.6E-02	na	2.4E+02	2.2E-01	5.6E-02	na	2.4E+02	--	--	--	--	--	--	--	--	2.2E-01	5.6E-02	na	2.4E+02
Endosulfan Sulfate	0	--	--	na	2.4E+02	--	--	na	2.4E+02	--	--	--	--	--	--	--	--	--	--	na	2.4E+02
Endrin	0	8.6E-02	3.6E-02	na	8.1E-01	8.6E-02	3.6E-02	na	8.1E-01	--	--	--	--	--	--	--	--	8.6E-02	3.6E-02	na	8.1E-01
Endrin Aldehyde	0	--	--	na	8.1E-01	--	--	na	8.1E-01	--	--	--	--	--	--	--	--	--	--	na	8.1E-01

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Ethylbenzene	0	--	--	na	2.9E+04	--	--	na	2.9E+04	--	--	--	--	--	--	--	--	--	--	na	2.9E+04
Fluoranthene	0	--	--	na	3.7E+02	--	--	na	3.7E+02	--	--	--	--	--	--	--	--	--	--	na	3.7E+02
Fluorene	0	--	--	na	1.4E+04	--	--	na	1.4E+04	--	--	--	--	--	--	--	--	--	--	na	1.4E+04
Foaming Agents	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Guthion	0	--	1.0E-02	na	--	--	1.0E-02	na	--	--	--	--	--	--	--	--	--	--	1.0E-02	na	--
Heptachlor [C]	0	5.2E-01	3.8E-03	na	2.1E-03	5.2E-01	3.8E-03	na	2.1E-03	--	--	--	--	--	--	--	--	5.2E-01	3.8E-03	na	2.1E-03
Heptachlor Epoxide [C]	0	5.2E-01	3.8E-03	na	1.1E-03	5.2E-01	3.8E-03	na	1.1E-03	--	--	--	--	--	--	--	--	5.2E-01	3.8E-03	na	1.1E-03
Hexachlorobenzene [C]	0	--	--	na	7.7E-03	--	--	na	7.7E-03	--	--	--	--	--	--	--	--	--	--	na	7.7E-03
Hexachlorobutadiene [C]	0	--	--	na	5.0E+02	--	--	na	5.0E+02	--	--	--	--	--	--	--	--	--	--	na	5.0E+02
Hexachlorocyclohexane Alpha-BHC [C]	0	--	--	na	1.3E-01	--	--	na	1.3E-01	--	--	--	--	--	--	--	--	--	--	na	1.3E-01
Hexachlorocyclohexane Beta-BHC [C]	0	--	--	na	4.6E-01	--	--	na	4.6E-01	--	--	--	--	--	--	--	--	--	--	na	4.6E-01
Hexachlorocyclohexane Gamma-BHC [C] (Lindane)	0	9.5E-01	na	na	6.3E-01	9.5E-01	--	na	6.3E-01	--	--	--	--	--	--	--	--	9.5E-01	--	na	6.3E-01
Hexachlorocyclopentadiene	0	--	--	na	1.7E+04	--	--	na	1.7E+04	--	--	--	--	--	--	--	--	--	--	na	1.7E+04
Hexachloroethane [C]	0	--	--	na	8.9E+01	--	--	na	8.9E+01	--	--	--	--	--	--	--	--	--	--	na	8.9E+01
Hydrogen Sulfide	0	--	2.0E+00	na	--	--	2.0E+00	na	--	--	--	--	--	--	--	--	--	--	2.0E+00	na	--
Indeno (1,2,3-cd) pyrene [C]	0	--	--	na	4.9E-01	--	--	na	4.9E-01	--	--	--	--	--	--	--	--	--	--	na	4.9E-01
Iron	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Isophorone [C]	0	--	--	na	2.6E+04	--	--	na	2.6E+04	--	--	--	--	--	--	--	--	--	--	na	2.6E+04
Kepone	0	--	0.0E+00	na	--	--	0.0E+00	na	--	--	--	--	--	--	--	--	--	--	0.0E+00	na	--
Lead	0	7.0E+01	7.9E+00	na	--	7.0E+01	7.9E+00	na	--	--	--	--	--	--	--	--	--	7.0E+01	7.9E+00	na	--
Malathion	0	--	1.0E-01	na	--	--	1.0E-01	na	--	--	--	--	--	--	--	--	--	--	1.0E-01	na	--
Manganese	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Marcury	0	1.4E+00	7.7E-01	na	5.1E-02	1.4E+00	7.7E-01	na	5.1E-02	--	--	--	--	--	--	--	--	1.4E+00	7.7E-01	na	5.1E-02
Methyl Bromide	0	--	--	na	4.0E+03	--	--	na	4.0E+03	--	--	--	--	--	--	--	--	--	--	na	4.0E+03
Methoxychlor	0	--	3.0E-02	na	--	--	3.0E-02	na	--	--	--	--	--	--	--	--	--	--	3.0E-02	na	--
Mirex	0	--	0.0E+00	na	--	--	0.0E+00	na	--	--	--	--	--	--	--	--	--	--	0.0E+00	na	--
Monochlorobenzene	0	--	--	na	2.1E+04	--	--	na	2.1E+04	--	--	--	--	--	--	--	--	--	--	na	2.1E+04
Nickel	0	1.3E+02	1.4E+01	na	4.6E+03	1.3E+02	1.4E+01	na	4.6E+03	--	--	--	--	--	--	--	--	1.3E+02	1.4E+01	na	4.6E+03
Nitrate (as N)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Nitrobenzene	0	--	--	na	1.9E+03	--	--	na	1.9E+03	--	--	--	--	--	--	--	--	--	--	na	1.9E+03
N-Nitrosodimethylamine [C]	0	--	--	na	8.1E+01	--	--	na	8.1E+01	--	--	--	--	--	--	--	--	--	--	na	8.1E+01
N-Nitrosodiphenylamine [C]	0	--	--	na	1.6E+02	--	--	na	1.6E+02	--	--	--	--	--	--	--	--	--	--	na	1.6E+02
N-Nitrosodi-n-propylamine [C]	0	--	--	na	1.4E+01	--	--	na	1.4E+01	--	--	--	--	--	--	--	--	--	--	na	1.4E+01
Parathion	0	6.5E-02	1.3E-02	na	--	6.5E-02	1.3E-02	na	--	--	--	--	--	--	--	--	--	6.5E-02	1.3E-02	na	--
PCB-1016	0	--	1.4E-02	na	--	--	1.4E-02	na	--	--	--	--	--	--	--	--	--	--	1.4E-02	na	--
PCB-1221	0	--	1.4E-02	na	--	--	1.4E-02	na	--	--	--	--	--	--	--	--	--	--	1.4E-02	na	--
PCB-1232	0	--	1.4E-02	na	--	--	1.4E-02	na	--	--	--	--	--	--	--	--	--	--	1.4E-02	na	--
PCB-1242	0	--	1.4E-02	na	--	--	1.4E-02	na	--	--	--	--	--	--	--	--	--	--	1.4E-02	na	--
PCB-1248	0	--	1.4E-02	na	--	--	1.4E-02	na	--	--	--	--	--	--	--	--	--	--	1.4E-02	na	--
PCB-1254	0	--	1.4E-02	na	--	--	1.4E-02	na	--	--	--	--	--	--	--	--	--	--	1.4E-02	na	--
PCB-1260	0	--	1.4E-02	na	--	--	1.4E-02	na	--	--	--	--	--	--	--	--	--	--	1.4E-02	na	--
PCB Total [C]	0	--	--	na	1.7E-03	--	--	na	1.7E-03	--	--	--	--	--	--	--	--	--	--	na	1.7E-03

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				**Most Limiting Allocations**			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	**Acute**	**Chronic**	**HH (PWS)**	**HH**
Pentachlorophenol [C]	0	1.3E+01	1.0E+01	na	8.2E+01	1.3E+01	1.0E+01	na	8.2E+01	--	--	--	--	--	--	--	--	**1.3E+01**	**1.0E+01**	na	**8.2E+01**
Phenol	0	--	--	na	4.6E+06	--	--	na	4.6E+06	--	--	--	--	--	--	--	--	--	--	**na**	**4.6E+06**
Pyrene	0	--	--	na	1.1E+04	--	--	na	1.1E+04	--	--	--	--	--	--	--	--	--	--	**na**	**1.1E+04**
Radionuclides (pCi/l except Beta/Photon)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Gross Alpha Activity	0	--	--	na	1.5E+01	--	--	ne	1.5E+01	--	--	--	--	--	--	--	--	--	--	**na**	**1.5E+01**
Beta and Photon Activity (mrem/yr)	0	--	--	na	4.0E+00	--	--	na	4.0E+00	--	--	--	--	--	--	--	--	--	--	na	**4.0E+00**
Strontium-90	0	--	--	na	8.0E+00	--	--	na	8.0E+00	--	--	--	--	--	--	--	--	--	--	**na**	**8.0E+00**
Tritium	0	--	--	na	2.0E+04	--	--	na	2.0E+04	--	--	--	--	--	--	--	--	--	--	**na**	**2.0E+04**
Selenium	0	2.0E+01	5.0E+00	na	1.1E+04	2.0E+01	5.0E+00	na	1.1E+04	--	--	--	--	--	--	--	--	**2.0E+01**	**5.0E+00**	**na**	**1.1E+04**
Silver	0	1.7E+00	--	na	--	1.7E+00	--	na	--	--	--	--	--	--	--	--	--	**1.7E+00**	--	**na**	--
Sulfate	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	**na**	--
1,1,2,2-Tetrachloroethane[C]	0	--	--	na	1.1E+02	--	--	na	1.1E+02	--	--	--	--	--	--	--	--	--	--	**na**	**1.1E+02**
Tetrachloroethylene[C]	0	--	--	na	8.9E+01	--	--	na	8.9E+01	--	--	--	--	--	--	--	--	--	--	**na**	**8.9E+01**
Thallium	0	--	--	na	6.3E+00	--	--	na	6.3E+00	--	--	--	--	--	--	--	--	--	--	**na**	**6.3E+00**
Toluene	0	--	--	na	2.0E+05	--	--	na	2.0E+05	--	--	--	--	--	--	--	--	--	--	**na**	**2.0E+05**
Total dissolved solids	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	**na**	--
Toxaphene [C]	0	7.3E-01	2.0E-04	na	7.5E-03	7.3E-01	2.0E-04	na	7.5E-03	--	--	--	--	--	--	--	--	**7.3E-01**	**2.0E-04**	**na**	**7.5E-03**
Tributyltin	0	4.6E-01	6.3E-02	na	--	4.6E-01	6.3E-02	na	--	--	--	--	--	--	--	--	--	**4.6E-01**	**6.3E-02**	**na**	--
1,2,4-Trichlorobenzene	0	--	--	na	9.4E+02	--	--	na	9.4E+02	--	--	--	--	--	--	--	--	--	--	na	**9.4E+02**
1,1,2-Trichloroethane[C]	0	--	--	na	4.2E+02	--	--	na	4.2E+02	--	--	--	--	--	--	--	--	--	--	na	**4.2E+02**
Trichloroethylene [C]	0	--	--	na	8.1E+02	--	--	na	8.1E+02	--	--	--	--	--	--	--	--	--	--	**na**	**8.1E+02**
2,4,6-Trichlorophenol [C]	0	--	--	na	6.5E+01	--	--	na	6.5E+01	--	--	--	--	--	--	--	--	--	--	na	**6.5E+01**
2-(2,4,5-Trichlorophenoxy) propionic acid (Sitvex)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	**na**	--
Vinyl Chloride[C]	0	--	--	na	6.1E+01	--	--	na	6.1E+01	--	--	--	--	--	--	--	--	--	--	na	**6.1E+01**
Zinc	0	8.2E+01	8.3E+01	na	6.9E+04	8.2E+01	8.3E+01	na	6.9E+04	--	--	--	--	--	--	--	--	**8.2E+01**	**8.3E+01**	**na**	**6.9E+04**

Notes:

1. All concentrations expressed as micrograms/liter (ug/l), unless noted otherwise
2. Discharge flow is highest monthly average or Form 2C maximum for industries and design flow for Municipals
3. Metals measured as Dissolved, unless specified otherwise
4. "C" indicates a carcinogenic parameter
5. Regular WLAs are mass balances (minus background concentration) using the % of stream flow entered above under Mixing Information.
   Antidegradation WLAs are based upon a complete mix.
6. Antideg. Baseline = (0.25(WQC - background conc.) + background conc.) for acute and chronic
   = (0.1(WQC - background conc.) + background conc.) for human health
7. WLAs established at the following stream flows: 1Q10 for Acute, 30Q10 for Chronic Ammonia, 7Q10 for Other Chronic, 30Q5 for Non-carcinogens,
   Harmonic Mean for Carcinogens, and Annual Average for Dioxin. Mixing ratios may be substituted for stream flows where appropriate.

Metal	Target Value (SSTV)
Antimony	4.3E+03
Arsenic	9.0E+01
Barium	na
Cadmium	4.9E-01
Chromium (t	3.1E+01
Chromium VI	6.4E+00
Copper	3.6E+00
Iron	na
Lead	4.7E+00
Manganese	na
Mercury	5.1E-02
Nickel	8.5E+00
Selenium	3.0E+00
Silver	6.7E-01
Zinc	3.3E+01

Note: do not use QL's lower than the minimum QL's provided in agency guidance